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AND

COAL

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THE strike of the French coal miners, judging from the cable accounts, promises to be a long and stubborn struggle, and much bad blood has already been shown on both sides. There is some anxiety felt lest it should extend to other districts, but the miners are nowhere else so well organized as in the Pas-de-Calais, and do not seem quite ready yet to join in the movement.

In Belgium the strike mentioned last week was a short one, since the men in the Charleroi district who went out have already returned to work, not having received the support which they expected from other districts.

THE endeavor to adjust the wages of miners in Colorado so as to meet the difficulties created by the fall in the price, is not meeting with much success. At Leadville an arrangement has been made with the men at some of the mines whereby they agree to work at a lower rate until the price of silver goes up, but at Aspen they are stubborn in resisting a lowering of their wages. As winter is fast approaching, when prospect work on the mountains and placer mining in the streams must cease until the snow disappears again, it is much to be regretted that satisfactory arrangements cannot be entered into so that the men will not remain idle during the winter months.

THE great strike of the English coal miners, which has caused more trouble and suffering than any labor movement for many years past, seems to be near its end, although the miners' union still makes a show of keeping up the fight. The dispatches say that the men are everywhere going to work, in some places without any agreement at all, in others on the compromise suggested by the mayors of the leading midland cities, that the old rate of wages shall be paid until December, when the men are to submit to a 10 per cent. reduction. The losses to the coal trade directly and to the iron and other industries have been enormous, and there has perhaps never been a strike the consequences of which have been so severely felt in every part of the country.

THE proposed importation of Welsh anthracite, which was announced in these columns last week, has created quite a flutter among the coal men, some of whom pretend that Welsh coal cannot be mined and put on board vessels at less than $2.25 a ton and cannot be sold here at less than $5—which, if it were true, or believed to be true, would render their anxiety quite unnecessary. Others declare that "there is nothing in it," but nevertheless they all show much uneasiness over the plan. The facts are that the scheme has been suggested several times and when the anthracite combination last year advanced prices exorbitantly and sought to crowd out the middlemen, this foreign supply was again investigated, and serious efforts were made to constitute it a factor in the market.

Naturally our dealers do not wish to give up their present trade in Pennsylvania anthracite and antagonize the producers unless they have an absolute assurance of a steady supply for all the trade they can work up during a period of years, and this alone is the difficulty which has not been as yet satisfactorily settled. The price at which Welsh coal can be delivered and its quality are satisfactory, as we stated, but until a ten-year contract can be made no important business is likely to be attempted. Whether the English producers will concede this point we have no means of knowing, but that serious business is contemplated if they do is beyond all question, as our coal combination will no doubt appreciate in due time.

NOT only is the silver purchase law a danger and injury to silver, because the accumulation it has occasioned is a constant menace to the world's market and has thereby lowered the price of the metal, and has frightened Austria out of the silver camp and India into closing her mints against free coinage, but, as long as it continues in force, it effectually prevents the adoption of the only plan—international co-operation—which can possibly provide a permanent and sufficient market for the metal.

Moreover, the refusal of the small minority in the Senate to allow the will of the country to be carried out, unless they—the minority—are bought off by a large purchase of the bullion some of them produce, is a danger to our free institutions of infinitely greater importance than would be even the total extinction of our entire silver industry. If a few dissatisfied or venal Senators can stop all legislation until they are paid their price, whether in offices, in buying their wares, or in paying the bribe in some other way, then, indeed, legislation will, before long, be all put up to the highest bidder and our free institutions will quickly be destroyed or sold out.

It is incomprehensible that men of high character and ability should lend themselves to such a dangerous course. No one expects much else from men so unscrupulous and dishonest as Senators Stewart and Jones, but that their Comstock-Mill ring methods should be tolerated in the Senate of the United States is indeed incomprehensible.

THE recent serious accident at the Dolcoath mine, in Cornwall, has once more attracted public attention in England to the absence of insurance funds wherewith to relieve the distress which such disasters leave in their

wake. It is true that Englishmen always subscribe readily and generously whenever the disaster is sufficiently great to entitle it to be called national; but if the accident entails a loss of only ten lives, or if it occurs at almost the same time as a much greater one, the chances are that the sufferers do not get the help needed. As an example of the unevenness of public subscriptions we may mention the case of the Thornhill colliery disaster in Yorkshire, which took place a few days after the loss of the battleship "Victoria." The excitement following on the receipt of the news of the naval disaster totally eclipsed the sympathy due to the hundred or more families reduced to misery by the colliery explosion, and as a consequence nearly all the available money disbursed by charitably inclined people went to the "Victoria" fund. If it had not happened that both accidents occurred simultaneously the colliery relief fund would have been three times as great as it was. This dependence on luck or chance for the relief of distress has caused leading philanthropists to look round for a more certain method of providing for such disasters; but during the last three years a rather more potent factor has caused them to devote more pressing attention to the subject. This is the general decrease in charitable subscriptions caused by the depression of trade and the falling off in the receipts from foreign investments. The hospitals and other public institutions that depend on subscriptions for their incomes are all more or less crippled at present, and are recognizing the fact that some permanent endowment fund is necessary. It is therefore not surprising to hear that the Cornishmen have determined, in the face of another fatal disaster, that the time has arrived for the formation of a county fund to provide adequate assistance to those bereaved by fatal accidents in Cornish mines. At a preliminary meeting a committee was appointed to act in conjunction with the Mining Association of Cornwall, and others, to form such a fund. Judging by the way in which subscriptions are already coming in, the new plan is likely to be successful.

THE MASHONALAND GOLD FIELDS.

Recent telegrams bring news of an uprising of the natives in Mashonaland, the newest of the gold mining regions of the world. The Matabele tribes are the most military of the native races of South Africa and are governed by a potentate—Lobengula—of more than ordinary barbaric intelligence. Mashonaland and Matabeleland came under British protection in 1888 and it was in the following year that Mr. Cecil Rhodes, the premier of Cape Colony, organized the British South Africa Company. Since that time much progress has been made, as we have noted from time to time. Mr. Rhodes has subsidized Lobengula and that chieftain gave no trouble until recently, when he became jealous of the rapid occupation of the country. The interest of the stockholders in the company and the reported atrocities committed by the Matabeles against the children and women of the white men will bring matters quickly to a head. The settlers around Fort Victoria and Fort Salisbury, assisted by the semi-military organization of the British South Africa Company and aided also by volunteers sent from the Cape Colony and the Transvaal, and probably by imperial troops, will in the end subdue the Matabeles as the Kaffirs and the Zulus have been conquered before them.

The uprising will further delay the deferred boom in Mashonaland. Ever since its first exploration the hope has been held out of developing a second Witwatersrand in this central South African territory. The letters of Lord Randolph Churchill, and the report given by some American mining engineers who visited the country at about the same time, tended to dampen the ardor of the gold seekers. Since that period, however, prospecting has been carried on with vigor, and at Hartley Hill, Mombe, Mazoe and Victoria good sized lodes of quartz of very fair grade have been found. The country is waiting for better means of transport, and for the stamp mills, which, together with other necessary machinery, it is at present so costly to import.

This land is the last resting place of the old myth of the gold seeker's romance. Manica and Mashonaland are believed to have been a great gold producing country when Central Europe was a savage wilderness, as was shown in the article on Mashonaland, published in our issue of July 29th last, and by the aid of modern methods they may resume a position among the gold mining regions of the world.

SILVER COMPROMISE FATAL.

Compromise again! It seems scarcely credible to rational and thinking individuals that the "friends" of silver have not by this time learned how much they hurt their own cause by attempting to force another compromise upon an unwilling legislature and executive. We use the phrase "another" compromise advisedly, as the purchasing clause of the Sherman act of 1890, now sought to be repealed, was nothing more nor less than a compromise, and, since the present debate has been in progress, avowedly admitted by both sides to have been such.

Let us have no more patchwork legislation of this description. The purchasing clause is admitted to be hurtful and injurious by both sides looking at the question through spectacles of different color. This certainly is one point clearly gained; and one of the most notable of the opponents to the repeal of the purchase clause, and representing the largest silver producing constituency, viz., Senator Wolcott, states in most emphatic language his hostility to the obnoxious purchasing clause under debate. There is not a word on this subject, expressed by him, with which we are not in complete sympathy, though it is more than possible our ideas of accomplishing the same or somewhat similar end may not be identical. In the first place we are striving after the possible, while, to judge from his utterances, the senator in question is pursuing the reverse and simply wishing to kill time.

To prove how sound Senator Wolcott's views are—and we suppose he is in harmony with the rest of the silver contingent—we quote from one of his speeches during the recent debates:

"Everybody will admit, monometallists and bimetallists, that the Sherman act is vicious in principle and illogical so far as it affects the silver coin of this country. It is vicious in that is makes of silver a commodity and dethrones it from the pedestal where it belongs. It is illogical and vicious in that it leaves the silver bullion in the Treasury uncoined, and leaves this vast amount of silver a menace to Europe, which foreign nations that might incline to join with us in the double standard fear may be dumped upon her markets at any time."

Could anything be plainer or more satisfactory than this to plain every-day sort of business people?

Why, then, strive for a compromise? What is the bill of 1890 itself, so far as purchase of silver is concerned? Compromise, and a poor one at that. Let the silver purchase clause be repealed, let all cause of grumbling on this score be removed from manufacturers, Wall street gold bugs and others, and let the subject be approached in a sensible manner as a currency question of grave import to the world.

There is one point on which from insufficient and misleading information the public is apt to go astray, and possibly this has contributed to the length of the dragged-out discussion in the Senate. The most important element in the silver industry in this country, and virtually the control of the larger proportion of the silver product, is in the hands of very few individuals. Those are men of business and can understand the true situation. In the first place, they took no part in mass meetings calling for "free and unlimited coinage," irrespective of what financial disaster to the country such a course might produce. In the second place, possessing not only the capital but a very large proportion of the brains, common horse sense and education of the silver party, they set themselves carefully to study the subject from a truly bimetallic point of view, and have learned more than most of the so-called silver senators. The first conclusion naturally arrived at was that not only was it impossible from a Congressional point of view to attain free coinage of silver, but that such a step from a national standpoint was dangerous and undesirable, the solution in this direction being international co-operation. By this section of the silver party conditional repeal was faintly hoped for, either on the lines of "American product only," with seigniorage accruing to the government over and above market price, or something similar. This, however, not being feasible, we believe that this section, which is really the mainspring and life blood of one of our most important national industries, would prefer to see an unconditional repeal, trusting to the assurance given by President Cleveland in his letter to Governor Northen: "Within the limits of what I have written I am a friend of silver, but I believe its proper place in our currency can only be fixed by a readjustment of our currency legislation and the inauguration of a consistent and comprehensive financial scheme," and that this prospective settlement of the question be left to a commission of experts better qualified to deal with the somewhat abstruse question of bimetallism than a dilatory and insincere Senate.

NEW PUBLICATIONS.

The Transition Curve by Offsets and by Deflection Angles. By Prof. C. L. Crandall, Cornell University. New York: John Wiley & Sons. Pages, 64; with diagrams and tables. Price $1.50.

The transition curve has been treated before by White, Jameson and others, being apparently a favorite subject for engineers. The method followed has usually been by approximations, which were accurate enough for the work usually met in the field, but did not hold for large central angles. In the present case the curve treated is the true transition curve, whose curvature increases directly with the distance. Accurate methods have been developed which will hold for large central angles for both offset and deflection methods. The treatment is concise and accurate, and the method is reasonable and intelligible. There are 25 pages of tables for fieldwork added, which will save the engineer much computation.

Steam Shovels and Dredges. Third edition. South Milwaukee, Wis. The Bucyrus Steam Shovel and Dredge Company. Illustrated.

The very handsome volumes put out by the Bucyrus company deserve more than the passing notice given the ordinary trade catalogue. It is not alone that they are handsomely printed and bound with engravings of excellent quality, but also that they form in themselves really a treatise on the dredge and steam shovel which is worth preservation. There is, in fact, much good technical literature in the

best class of trade catalogues, of which the book before us is a specimen, and a very little addition would convert them into valuable books of reference. There is no doubt, moreover, that so handsome a book as the Bucyrus catalogue gives the reader at first sight a favorable idea of the company represented, which its contents will help to confirm.

THE PHOSPHATE INDUSTRY OF THE UNITED STATES. SIXTH SPECIAL REPORT OF THE COMMISSIONER OF LABOR. Hon. Carroll D. Wright, Commissioner. Washington; Government Printing Office. Pages 148; illustrated.

This report has been prepared by the Bureau of Labor, in response to a resolution of the United States Senate, passed in December, 1890. It is both historical and statistical, giving an account of the phosphate industry from its first beginning in South Carolina and Florida up to the end of 1892, with tables of production and cost and an account of its present commercial position. The bureau has collected a large amount of information with regard to the industry, and in the matter of cost has gone into some elaborate detail. Some of the conclusions reached are interesting, and a summary of them will be found on another page. While the report has much of value in it, the statistics do not appear to have been as carefully arranged as might be, since the figures for production given in different tables do not agree, and no explanation is given of the different statements. In the table of total production, on page 91, for instance, the totals are not the same as those in the tables on following pages which give the South Carolina and Florida output separately. The reports given from different mines give elaborate details, and the descriptive chapters have also much that is interesting.

TRAITÉ DE L'ELEVATION DES EAUX. Par P. Berthot, Ingenieur. Paris France; Baudry & Cie. Pages 380; illustrated.

The object of this treatise, according to the author, is to present at once the theoretical considerations and mathematical laws governing the construction of machines for elevating water, and the practical results, as worked out in the machines themselves, and thus to enable the student or constructor to work out for himself the merits of the different systems presented to him. The work has something of a historical character also, as it describes the machines which were devised and used in the early stages of mechanical art, and those still in use in the partly civilized countries.

The first part of the book is devoted to general considerations, theory and tables of the speed of water, losses of power by friction, retardation in conduits, etc. The second part treats, in successive chapters, of hand-pumps; pumps worked by animal power; wind mills and water motors, rotary pumps, steam pumps, and pumps worked by gas and electrical motors. The third part is devoted to feed pumps and hydraulic machinery. The fourth treats of pulsometers, injectors and other apparatus of the same class, while the fifth and last relates to hydraulic rams and other special machinery.

The historical part of the book is well written and interesting. The more practical part, while hardly so full of detail as Barr's work on pumping machinery, still gives a very fair account of modern practice—that is, of European practice, for, as might be expected, there is little said about American methods. A Worthington steam pump and a Worthington compound pumping engine represent this country, the other examples shown being French or English, with a few from Germany.

The theoretical part of the book is fairly well worked out, much of it showing the French engineer's fondness for the higher mathematics. The chapters on the rotary pump are of especial interest, and are carefully worked out and written. They have not, however, much information as to the use of centrifugal pumps in train, a subject which, the author thinks, requires more experiment to determine how far it can be made useful.

On the whole, the book is a good general treatise on pumping, though it would be improved for our use by the addition of chapters on American practice. Considerable space, it may be added, is devoted to mining pumps of various descriptions.

BOOKS RECEIVED.

In sending books for notice, will publishers, for their own sake and for that of book buyers, give the retail price? These notices do not supersede review in another page of the Journal.

Misuse of Legal Tender. By Sidney Webster. New York; D. Appleton & Co. Pages 44.

King's Hand-Book of New York City. Boston, Mass.; Moses King. Page 1,008; with over 1,000 illustrations. Price $2.

New Mexico School of Mines: First Annual Announcement. Socorrow, N. M.; issued by the school. Pamphlet, 32 pages.

Bradley's Atlas of the World, for Commercial and Library Use. Revised edition. Philadelphia; Wm. M. Bradley & Co. Price $27.

Michigan Mining School: Reports of the Director, 1890-92. Dr. M. E. Wadsworth, Director. Lansing, Mich.; State Printer. Pages 164.

Three Introductory Lectures on the Science of Thought. By F. Max Müller Chicago; the Open Court Publishing Co. Pages 124. Price 25 cents.

Geological Survey of Canada: Catalogue of Section 1, of the Museum. By G. Christian Hoffmann. Ottawa, Can.; Public Printer. Pages 256.

Catalogue of the Minerals of Tasmania, with Notes on Their Distribution. By W. F. Petterd. Hobart, Tasmania; Government Printer. Pages 72.

Objects of Interest to Engineers and Others In and About Philadelphia. Philadelphia; published by the Engineers' Club of Philadelphia. Pages 110; with maps.

Tables for the Computation of Railway and Other Earthwork. Second Edition. Computed by Prof. C. L. Crandall, C. E. New York; John Wiley & Sons. Pages 44.

Geology and Mineral Resources of Kansas. By Robert Hay. From the Eighth Biennial Report of the State Board of Agriculture. Topeka, Kan.; State Printer. Pages 68; illustrated.

Tables for the Determination of Rock-forming Minerals. By Prof. F. Loewinson-Lessing. Translated from the Russian and enlarged by J. W. Gregory and Prof. G. A. J. Cole. London and New York; Macmillan & Co. Pages 543. Price in New York, $1.50.

CORRESPONDENCE.

We invite correspondence upon matters of interest to the industries of mining and metallurgy. Communications should invariably be accompanied with the name and address of the writer. Initials only will be published when so requested.
All letters should be addressed to the MANAGING EDITOR.
We do not hold ourselves responsible for the opinions expressed by correspondents.

The Granulating Matte Process.

EDITOR ENGINEERING AND MINING JOURNAL:

Sir: In your paper of September 16th Mr. Browne describes the World's Fair exhibit of the Canadian Copper Company, and says that "the slag from their smelting furnace flows continuously from the well through an opening in the floor, where a powerful jet of water granulates it and carries it to the dump—a system devised by Mr. James McArthur, the general managerof the company." Mr. Browne is mistaken, since the system was devised by others. Mr. Colquhoun used it in Clifton, Ariz., at least three years ago, and there is an account published fully two years ago of how Mr. Lang, the inventor of the matte process, lets his slag fall through a hole in the floor into a stream of watee to get rid of it.

SAN FRANCISCO, Cal., Oct. 1893. J. DEWING.

The Use of Plain English in the Discussion of Geological Questions.

EDITOR ENGINEERING AND MINING JOURNAL:

Sir: In the present contribution I desire to make a plea for the greater use of simple Anglo-Saxon English in the discussion of mining and geological matters and to enter a protest against the rapidly increasing introduction of long Greek and Latin words, which have a tendency to diminish the clearness and force of the literature of science. Not long ago an individual, who called himself a "mining expert," whom his friends style "professor," was visiting a mine lying among the mountains that encircle Silver Plume, Colo. The Cornish miners who were at work received him with simple courtesy, but he began, with criminal carelessness, to scatter around a flood of high-sounding, geological terms. The "cousin Jacks" were dismayed, when, suddenly and quickly, a little man, who hailed from St. Just, came up to the "professor," and, showing him a handful of clay, asked him to give it a name. "What do ee call un, you?" The big man hesitated for a moment and then let go with: "The argillaceous remnant of an antediluvian world." Quicker than I can write it came the miner's reply, tapping the "professor" on the shoulder, "That's just what I told me partner."

Who is to read and derive benefit from the writings which relate alike to mining and to geology, such subjects, for instance, as are discussed by the readers of the "Engineering and Mining Journal?" If the questions of economic geology are to be reserved for the library of the scientist and the laboratory of the chemist, then, by all means, let go your fireworks of wise-sounding words, and make the problem no less etymological than geological. Yet I would suggest that if we are to learn to collect new facts, and to make fresh observations, rather than to continue increasing the number of glittering generalizations and fascinating speculations, we must write and talk so that the miner, as well as the engineer, may understand and become interested in the accumulation of the facts and observations, without which mining geology is only amusing guesswork. We must enlist the services of those whose eyes have been trained amid the darkness of the underworld, and take our inquiry from the lecture room to the mine.

Few things are more despairing than the unpractical theories of certain geologists on the one side and the wild explanations of the practical miner on the other. Instances of the former are becoming rare, but notwithstanding the teachings of geology, and the spread of an elementary knowledge of natural science, it is discouraging that the miner, the foreman and sometimes the mine manager should so often show an entire want of confidence in the teachings of the scientific authorities. This is largely due to the fact that these men do not read the literature of the subject because it has a language which to them is to a large extent unintelligible. To these men, who have no dictionaries at hand, we might owe an invaluable gathering of facts and observations, if only plain English were more generally used.

Some years ago, when visiting a well known mine in Queensland, I was shown a report written by a gentleman who had many letters of the alphabet after his name. In that report a certain lode was described as "traversing on the one hand a metamorphic matrix of a somewhat argillo-arenaceous composition, and on the other hand what appears to be a felspathic terfaceous igneous rock. What did he mean? Let us take down the dictionary and translate. A "metamophic matrix of a somewhat argillo-arenaceous composition," being translated, is equivalent to an "altered material of a sandy clay composition," which, being further interpreted, may mean something, but certainly does mean very little, and is as descriptive of mud as of anything else.

Let me offer a few common illustrations of the unnecessary use of foreign, especially Greek and Latin, words. Why do we say "argentiferous" and "auriferous" when "silver-bearing" and "gold-bearing" are fully as expressive. When a man means "mud" why does he write "argillaceous matter?" Why call a thing "arenaceous" when we mean that it is "sandy?" Do not our own English words "bed" and "bedding" say everything that is told by the Latin "stratum" or the Latin-English "stratification?" Why say "folia" when it is equivalent of "leaves," and why use "interfoliated" when "interleaved" would do just as well? Finally, why not call a spade a spade and not an agricultural implement for triturating the soil?

To quote a recent example, Professor Posepney, in his new and masterly contribution to the literature of ore deposits, has introduced sev-

eral fresh terms, which appear to me to be uncalled for, and which only make more bewildering the classification of lode formations. He gives us "idiogenous," "xenogenous" and "hysteromophous," with their allies, "idiogenites," "xenogenites" and "hysteromorphites." They are all ugly words, and wherein do they improve upon "primitive" or "original" for the first, "secondary" or "foreign" for the second, and "later" for the third? To the man who knows Greek these new terms may indeed convey certain finer shades of meaning, but the benefit to be so derived is small compared to the harm done by the further bewilderment resulting from their usage.

To sum up the whole matter, the use of simple language in geology, as everywhere else, will conduce to clearness of thought and expression, exactness of observation and knowledge.

Denver, Colo., October 1, 1893. T. A. Rickard.

THE PHOSPHATE INDUSTRY OF THE UNITED STATES.*

In 1890 a resolution was passed by the United States Senate directing the Commissioner of Labor to make a special report on the phosphate industry. This report, which has just been issued, contains a number of figures and statements collected by the bureau, a summary of which is given below:

The shipments of South Carolina phosphates began with 6 tons in 1867, increasing to 11,862 tons in 1868 and 28,271 tons in 1869. From that year to 1889 the production, by periods of five years, was: 1870-74, 386,732 tons; 1875-79, 827,955 tons; 1880-84, 1,738,627 tons; 1885-89, 2,435,616 tons. The figures are in tons of 2,240 lbs. For the last three years the South Carolina production is given as follows:

	1890.	1891.	1892
Shipped to foreign markets	219,822	126,798	124,454
Shipped to domestic markets	250,936	295,151	242,942
Manufactured at home	116,000	151,000	181,000
Total	586,758	572,949	548,396

The heavy drop in foreign shipments in 1891 was partly offset by the increase in home consumption, so that the total decrease, while continuous, has not been rapid during the three years.

The period of the Florida industry is covered by five years, the figures given for which in the report are as follows, also in tons of 2,240 lbs.:

	1888.	1889.	1890.	1891.	1892.
Hard rock	...	25	17,345	88,343	202,019
Land pebble	...	...	...	2,925	17,795
River pebble	813	3,755	33,336	79,265	126,172
Soft phosphate	...	...	1,700	10,784	8,341
Total	813	3,780	52,381	181,317	354,327

Of this total in 1892 there were 307,574 tons shipped through the United States custom houses, 249,069 tons going to foreign and 58,505 tons to domestic ports. The balance of 46,753 tons is made up by railroad shipments and home consumption. The shipping ports were: Fernandina, 126,950 tons; Punta Gorda, 76,040 tons; Tampa, 78,149 tons; Brunswick, 19,097 tons; Savannah, 7,338 tons.

The figures differ from those of the "Mineral Industry" for 1892 mainly in the allowances made in this report for the amount used and manufactured at home, which must be in large part estimated. It must be noted also that the figures in the table below, giving total output for 1892, differ materially from those just summarized. The cause of the differences is not explained in the report.

While the tables given above represent shipments, a different statement is given in another table in the report, where the total production of phosphates in 1892 is given, as below, in tons of 2,240 lbs.:

	Land mines.	River mines.	Total.
North Carolina	700	.....	700
South Carolina	429,976	269,000	698,976
Florida	371,190	160,837	532,027
Total	180,866	429,837	1,231,703

Of the total number of 137 mines included in this table, there were 112 land mines and 25 river mines, as shown in the summary given below, which is taken from the report. The period for which figures are given is in general the calendar year 1892; but in some cases the years reported by different companies varied, ending with different months. In such cases figures are given for the fiscal year, terminating nearest to December, 1892.

The tables given include for the State of Florida 88 land mines and 18 river mines, or 106 mines for the State; one land mine for North Carolina; and 23 land mines and 7 river mines for the State of South Carolina, or a total for the latter of 30 mines, the whole number of mines considered being 137. In the phosphate industry production is usually measured by tons of 2,240 lbs., while sales or consumption are measured by tons of 2,000 lbs. From the general tables it is found that the total amount of phosphate mined by the 137 mines considered was 1,231,703 tons, having a value at the mine of $7,153,141. Of this production 1,033,409 tons were shipped from the mines.

The number of acres controlled for mining purposes in Florida is 179,848; in North Carolina, 2,500; and in South Carolina, 69,790, or a total of 252,138 acres. The miles of river controlled for mining purposes in Florida are 163½ in 15 mines, 3 mines not reporting; and in South Carolina, 7 in 1 mine, 6 mines not reporting, or a total of 170½ miles in 16 mines, 9 mines not reporting. The total capital invested in plant in Florida is $2,140,582, and in land $11,346,067; in North Carolina the plant is represented by $2,000 and the land by $100,000; in South Carolina the plant is worth $2,563,200 and the land $2,920,000. The capital invested, then, in plant (the facts not being given for 5 mines) is $4,705,782. and in land (the facts not being given for 16 mines) $14,366,067, or a total of $19,071,849 invested in the phosphate mining of the country.

The total average number of employes engaged in the production of phosphate is 9,175. This, however, does not include all the labor in one mine and the skilled labor in two mines, these facts not being reported. The total expenditure for labor for the period covered was, in Florida, $881,711; in North Carolina, $1,215; and in South Carolina, $1,590,689, or for the whole $2,473,615. In this amount is included, in three mines, the expenditure for officials and clerks, which was given by the proprietors, but who declined to separate the amounts. It makes no appreciable difference, however, in the grand total. The average yearly earnings of employes engaged in production in the land mines of Florida are $211, and in the river mines $347; in the land mines of South Carolina $287, and in the river mines of that State $378; in North Carolina the earnings of the employes are now, on an average, $68 per annum. The average in Florida, for both land and river mines, is $225, and in South Carolina, $303 or for the whole industry $270 per annum.

It has been difficult to secure the cost of producing phosphate in various localities, and there is a very great variation in the reports. A general summary is given, the averages being made up from the returns of those companies only which give full statements of cost. For land mines, taking the total cost in Florida for the 71 mines covered by the summary, which include labor, officials and clerks, supplies and repairs, and taxes, the average cost per ton, as shown by the cost for 279,499 tons, is $2.654. Adding to this the cost of insurance, interest, depreciation of value of plant, royalty to owners of the soil, and transportation to place of free delivery, averaging $2.965, it is found that the average total cost of a ton is $5.619 in Florida. The table giving the facts for 22 land mines in South Carolina shows that the average cost of 391,576 toss, for labor, officials and clerks, supplies and repairs and taxes, is $3.497, while the addition, consisting of insurance, interest, depreciation of value of plant, royalty to owners of the soil, and transportation to place of free delivery, is $0.843 per ton on an average, or a total cost in South Carolina for phosphate from land mines of $4.34, as against $5.619 per ton, on an average, in Florida. The cost of labor in mining in South Carolina is greater than in Florida, it being on the average $2.798 per ton, as against $1.878 on the average in Florida, while the cost of transportation in Florida is $2.802 per ton, as against $0.447 in South Carolina. The South Carolina mines are more accessible than those in Florida, a fact which accounts for this great difference. The single mine in North Carolina reports for 700 tons production an average cost for labor, supplies, etc., of $3.186 per ton; there was no expenditure for transportation or other items.

Observing the same divisions as to elements of cost as were observed in the consideration of land mines, it is found that in Florida, for all river mines, covering 93,737 tons, the average cost of one ton is $1.954 for labor, officials and clerks, supplies and repairs, taxes and royalty to the State. The total cost must be increased, however, by the addition of issurance, interest, depreciation and transportation, which amount to $2.824, or a total of $4.778 for phosphate from river mines in Florida. In South Carolina the cost is, for four river mines, $2.355 for labor, supplies and royalty, and $0.146 for insurance, transportation, etc., a total of $2.501, and, as in the case of the land mines, this large difference in cost is caused by the wide difference is cost of transportation to place of free delivery. It may be added that in South Carolina the royalty paid to the State is $1 per ton. The detailed tables, giving the returns from each reporting mine, show a great difference in all the different items of elements of cost of the production of phosphate. The elements showing the greatest variation are those of labor cost in mining phosphate and in transportation. In the first instance the variation occurs on account of the varying conditions attending the mining. The widest differences are shown in the Florida land mines, as compared with the South Carolina land mines. This results from the fact that in Florida the country is undulating, the depths at which the phosphate is fousd varying so greatly as to make it impossible to establish even an approximately uniform cost per ton, while in South Carolina the phosphate mines are located on comparatively flat lands, the overburden being more even in depth. The variations in all land mining, however, are greater than those attending river mining. As to transportation, the variation takes place, of course, relatively to distances.

*Abstract from report on the Phosphate Industry, by the Hon. Carroll D. Wright, Commissioner of Labor.

Coal and Minerals in the Phillipines.—In a recent report by the British Consul at Manila upon the trade and general condition of the Philippine Islands, it is stated that, although the islands have abundant supplies of coal, nearly all used is imported, the native mines not being much worked for want of capital and labor. The total consumption per annum is from 50,000 to 60,000 tons. The bulk of the importation is from Australia and Japan, the quantities from both being about equal. Cardiff coal is only used by Government steamers and public works. For some months cargoes of coal have been coming from Borneo, but it sells at a considerable reduction on the price of Japan coal, its quality not being satisfactory. The richer deposits of coal so far discovered are the Compostela mines, in the Island of Cebu, which are being actively worked, and have swallowed up £20,000 with no paying output; the Masbate deposits, which are in a prospective scheme for working under a London syndicate, Professor Hilton, who was sent out by the syndicate to prospect, having reported the coal to be of first-class quality; the district of Sogod, in Albay province, and the small island of Batan, in Legaspi Bay, both very little worked.

Some Europeans of small capital have engaged with more or less success in mining for copper, gold, lead, silver, sulphur, etc. Of these enterprises some have failed for want of sufficient capital and the consequent insufficiency of machinery. One of the most abundant metals is gold, which is found all over the islands, in Luzon, the mountains of the northern province, and in the outlets of rivers in the southern. Up to the present all attempts to work these sources have failed, but an English company, the Philippines Mineral Syndicate, has entered on the field, purchased the mines of Mambulao, in the province of Camerines del Norte, sent out a staff of engineering officials, and dispatched from England the requisite machinery for working the mines.

ARTHUR FREDERICK WENDT.

The late Arthur Frederick Wendt was born in Milwaukee, Wis., in 1852, and moved to New York in 1865. In 1867 he entered Union College, at Schenectady, N. Y., but after the first year decided to take up mining as a profession and entered Columbia College, in New York City, graduating from the School of Mines with much credit and receiving the degrees of E. M. and C. E. in 1872, and then Ph. D. in 1886. Mr. Wendt's active professional life was confined to 20 years' practice, but his untiring energy compressed into those years a full life's work.

He was professionally connected with the antimony works in New Brunswick, with iron and coal mines in Maryland and Pennsylvania, with copper mines in Tennessee and Arizona, and with zinc mines in New Jersey. In 1885 he went to Bolivia, where he did much to resurrect the famous Potosi silver mines, and later he was connected with the great Huanchaca mines, also in Bolivia, and designed and erected the immense works for treating its ores at Antofogasta, in Chile. The machinery for these vast establishments was biult in the United States under Mr. Wendt's direction, and the cost of construction of the works and the equipment of the works and mines is said to have exceeded $2,000,000. Photographs of these works are now on exhibition in the Mines Building, World's Fair, in Chicago.

Mr. Wendt was not only enterprising, original and energetic in the practice of his profession, but he devoted not a little attention to literary work, and was a frequent contributor to the "Engineering and Mining Journal" and to the publications of the several technical societies of which he was a member. It was his intention to have crystallized in a technical work the wide experience his varied work was giving him.

It was during his residence in Bolivia that Mr. Wendt contracted the disease which put so untimely an end to a professional career, in which he had already achieved marked distinction and promised as years advanced to make extremely valuable contributions to the profession. Few engineers, indeed, have in their lives so varied a practice or have in so short a time attained so wide a reputation, and in so many departments of engineering practice.

Mr. Wendt died at Berlin, Germany, where he had recently gone with the hope of finding relief from his disease. He leaves a wife and one child.

THE LATE ARTHUR FREDERICK WENDT.

Steam Pipe for High Pressure Steam.—High-pressure steam has developed an unexpected difficulty in maintaining steam pipes, says Mr. John Richardson in "Industry." It seems anomalous that when boiler shells of as many feet in diameter as the steam pipes are in inches can be made safe, the pipes cannot. The difficulty is in movement of the latter. Being flexible all relative movements between the boilers and engines fall on the pipes. Expansion and contraction also interfere, with now and then a "slug" of water driven through like an ordnance projectile. Mr. Ferranti ingeniously divided his great steam pipes at Deptford, London, into sections or sets of four or more, so as to provide flexibility and secure safety, and it is strange this method is not followed on the great steamers. The Italian engineers have reinforced the steam pipes in the navy by winding them with wire of delta metal. Copper is the common and best material for large pipes, and if riveted instead of brazed, should be safe, when made with proper proportions.

THE ELECTRIC SEARCH LIGHT IN SHAFT SINKING.*

By James Baird.

The electric search light has been used to great advantage in shaft sinking at the Walkinshaw colliery, near Paisley, Scotland. The apparatus consists of an arc lamp, a lens and a mirror, the whole inclosed in a sheet iron case, 20 in. by 20 in. by 5 ft., having a sliding shutter on each side to give access to the lamp. The adjustment of the lamp is effected by a screw on the top of the case. As occasion requires it can be adjusted to diffuse light throughout the whole shaft, or be concentrated at the bottom, where the men are working. The mirror is hung on its center, and can be moved in a vertical direction, so as to deflect the rays of light to where wanted, after which it is held in position by a thumb-screw. The illuminating power of this lamp is equal to between 4,000 and 5,000 candles. The dynamo is an Elwell-Parker continuous current, compound-wound machine, running at a speed of 1,340 revolutions per minute, and having an electromotive force of 65 volts, and a current of 20 amperes, which is equal to about 2 H. P.

The shaft at Walkinshaw is circular, 13 ft. in diameter, and 260 ft. deep. It is lined with brick all the way, and is free from all buntons, except those necessary for carrying down brattice boards for ventilating purposes. The shaft, therefore, was favorable for this form of light, and so bright and clear did the light illumine the shaft bottom that it had the appearance as if the sun was shining on it. In the case of an oblong shaft with, say, two midwalls, the light would not give the same satisfactory results, but this could be remedied by having two lamps; and in the event of a deeper shaft being required than the one in question, a more powerful lamp could be used, although it is believed that the one employed at Walkinshaw would answer to a depth of 1,200 ft.

From experience the following advantages were found with the electric light: 1. The light at the shaft bottom was far in excess of that got from the ordinary sinker's lamps. Consequently, more work could be performed in a given time. 2. The lamp, being stationed on the surface, could be got at easily at any time for adjustment without inconvenience to the sinkers; and in the event of the strata giving off firedamp, it would give perfect immunity from danger of explosion. 3. By the aid of the light those in charge could see from the surface what was going on below, and this is an important matter.

While the light has great advantages, it is not, however, without its drawbacks, and not the least is its inability to pierce fog and the smoke from shot firing. With good ventilation the latter can very soon be cleared off; when fogs happen, provision would have to be made to use the ordinary hand lamps.

Utilization of Coal Mine Refuse.—In South Staffordshire the shale, which has for many years been thrown away as waste material, is now successfully used, after being ground, for making bricks, and they appear to be as hard in texture and as red in color as those made from red clay.

*Abstract of paper read before the Mining Institute of Scotland.

THE TRENTON IRON COMPANY'S TRAMWAY EXHIBIT AT CHICAGO.*

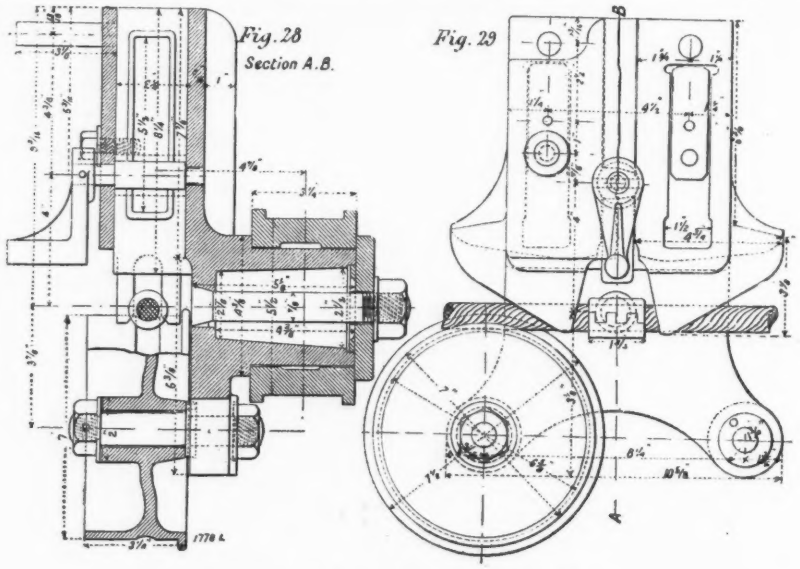
The Trenton Iron Company, of Trenton, N. J., makes a specialty, among other business, of wire rope tramways, and has completed a number of these in different parts of the United States. The company has an extensive exhibit in the Transportation Building of the Columbian Exposition, part of which is devoted to showing specimens of bridge and other ironwork, and the remainder to steel cables and rope transportation. The illustrations which we publish herewith (Figs. 1 to 18) illustrate clearly one of the systems which is extensively adopted. This is known as the Bleichert system, where a separt carrying cable is employed, on which run the carriages supporting the load, motive power being transmitted through a light endless traveling rope attached to the carriage below the main cable by means of a special grip. Some of the advantages claimed for this system over other overhead rope systems are as follows: The loads carried can be greater, thus increasing the carrying capacity of the lines; a load of 1,000 lbs. can be transported without difficulty on a carriage, which we believe is considerably more than is done with any other system. There is no tendency of the carrying rope to fall from its supports, as all the movement is effected by the traveling cables, to which a speed of three or four miles an hour is imparted. As the grip attaches the carriage to the traveling rope, there is no danger of any slip, and steep grades can be adopted without inconvenience. It is claimed also that the cost of construction is less in the Bleichert than in any other system; this claim is based on the fact that when the supporting is also used as the traveling rope, the strength of the whole length employed must be equal to the strain thrown upon the greatest span, and the section of cable must be kept uniform throughout. In the Bleichert system this inconvenience does not exist, and the strength of the carrying cable can be varied according to the spans employed; moreover, the return rope supporting the empty cars can be made much lighter than that for the loaded cars. On long steep inclines also this advantage is felt, because the section of cable can gradually be reduced toward the lower part of the grade. Against this has to be set the cost of the extra traveling ropes and the additional gear required. It is also claimed that the power required to drive the Bleichert system is less than on other systems, because the traction rope, instead of being loaded down by the cars, is supported by them, and a very slight grade suffices to work the system by gravity. Thus on a line in Arizona, 1,250 ft. long, the difference of level between the upper and lower ends is 100 ft., but this suffices to deliver 100 tons of ore per day by gravity.

The most convenient spans are from 150 ft. to 200 ft., but in some instances spans of 1,000 ft. and 1,500 ft. are employed. In crossing mountain ridges, however, it is necessary to have the supports not far apart, and in some instances a light trestlework with fixed rails is introduced, over which the cars travel, the supporting cables being diverted to one side. In this connection particulars of some of the more important installations on this system will be of interest.

The Bi-Metallic Mining Company's line, at Granite, Mont., has been in operation for about three years; the total length of this line is 9,750 ft., with a fall of 1,225 ft. The descending loads, amounting to a constant weight of about 11 tons, develop over 14 H. P., which is sufficient to haul the empty buckets, as well as about 50 tons of supplies per day up the line, and also to run the ore crusher and elevator. At the present speed of the line it is capable of delivering 200 tons of ore in 10 hours; but, by a slight increase of speed its capacity can easily be increased to 250 tons, without necessitating any material addition to the force of men employed. Under the latter conditions, the cost of transportation would be about 10 cts. per ton, or 5 cts. per ton per mile. The Granite Mountain Mining Company's line, at Rumsey, Mont., is similar in many respects to that of the Bi-Metallic, but the profile is more irregular. It is 8,750 ft. in length, has a fall of 1,297 ft., and develops over 14 H. P. On this line there is one span of 600 ft., and near the lower end the grade is unusually steep, there being a fall of 850 ft. in 1,800 ft., or nearly 1 in 2. The line built for the Split Rock Cable Road Company, of Syracuse, N. Y., for the transportation of lime rock, is 16,500 ft. long and passes over rolling ground, but has no very steep grades or long spans. Its daily capacity is 750 tons. At one point on the line a bend occurs, but so slight that no interruption to the traffic results in consequence, and it is not necessary to detach the cars. At the discharge terminal the loaded cars are run upon suspended rails over a line of kilns, into any one of which, by an arrangement of switches, they can be unloaded without delay and immediately started upon the return trip. As a precaution against fire, the entire superstructure at this terminal is of iron. This line has been in operation now for about three years, running night and day. During the year 1891 nearly 196,000 tons of lime-rock were carried over the line at a cost of about 6 cts. per ton per mile, covering all expenses, including payments for right of way and taxes.

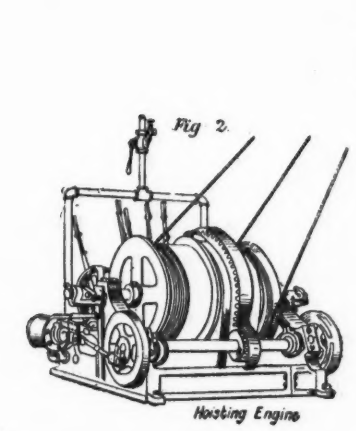
The line built for the Aspen Public Tramway Company, at Aspen, Colo., is used for conveying the ores from the mines to the railroad at Aspen, and has a daily capacity of 250 tons. The fall is 2,409 ft. in a total length of 9,850 ft., and when running to its full capacity the line develops about 60 H. P. The East Shore Terminal Company has two lines at Charleston, S. C., for conveying bales of cotton from the presses and stock in warehouses to vessels at wharves on the opposite side of a line of railroad which runs along the east side of the city. The line is 650 ft. long, and has a capacity of 100 bales per hour. It runs over the roofs of the warehouses and wharf sheds, the supports being all carried by the roof trusses. An elevator with two platforms is used for hoisting the bales to the loading terminal, which is centrally located above one of the warerooms at a height sufficient for the tramway cars to clear the roof. Platform cars of special construction are used for carrying the bales, and are fittted with latches, by means of which the bales are dumped automatically into a chute at the discharge terminal at the end of the wharf. As soon as the bales are dumped, the platforms of the cars right themselves immediately by means of counterweights. On a line built for the Magnetic Iron Ore Company, of Bensons, N. Y., the buckets are fitted with wheels, and the arrangement at the loading terminal is such that they can be readily detached from the hangers and taken to the face of the workings to be loaded. About 900 tons of iron ore are taken over this line in 10 hours, the guaranteed capacity being 800 tons. The line of the Macate Gold Mining Company, of Peru, is located in the Andes, and passes over as rough a section of ground as can be well imagined. In fact, it had to be designed especially for mule-back transportation, one of the stipulations of the contract being that no piece should weigh over 300 lbs., the framework for the stations being included in the contract. The line is nearly two miles in length, with a fall of 4,920 ft. Its daily capacity is 100 tons of ore, developing in its descent about 16 H. P., which is more than sufficient for carrying all the back freight to the mines, including 1,000 gallons of water per day, the latter being taken up in cylindrical tanks specially designed for the purpose. Perhaps the steepest tramway in the United States is the one built for the Holy Moses Mining Company, at Creede, Colo. It has a fall of 1,020 ft. in a length of 2,000 ft., and leads out from the loading terminal at the mine on an inclination of 31°, or a fall of 60 ft. in 100 ft. The daily capacity of this line is 250 tons.

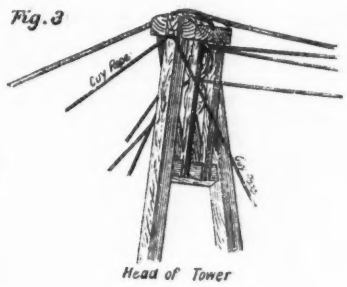
Our illustrations (Figs. 1 to 18) explain clearly the details of the Bleichert Tramway. Fig. 1 is a diagram of a single-span line showing the arrangement of the carrying and traction cables, the details of the hoisting engine, head of tower, arrangement of cables; and one form of hoisting carriage (see Figs. 6 to 8) is better shown in Figs. 2 to 5. Different types of carriers are illustrated (Figs. 9 to 12), and it is clear that these can be varied indefinitely according to the work for which they are intended. In each, however, the leading principle is the same; the load is supported on the two-wheeled carriage running on the main cable, and suspended from it is the grip, between which passes the traction rope, held up to its work by two friction wheels below.

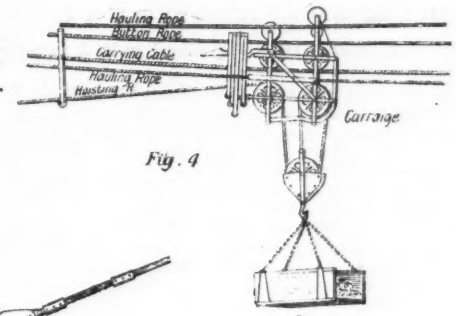


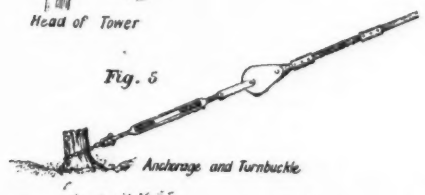
Friction Grip for Wire Rope Tramways.

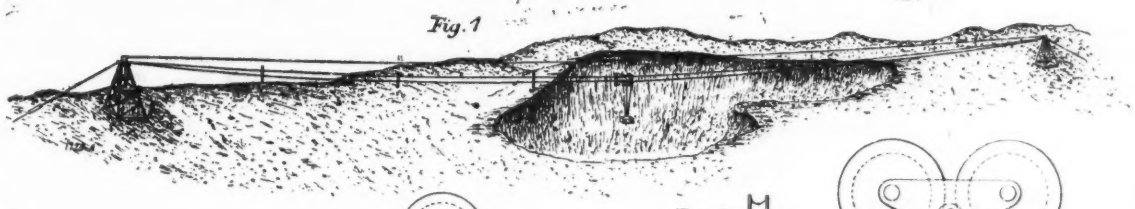
* Abstract of article in London "Engineering."

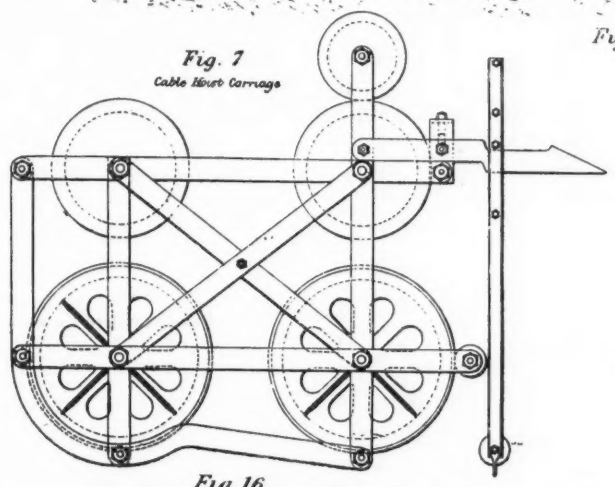


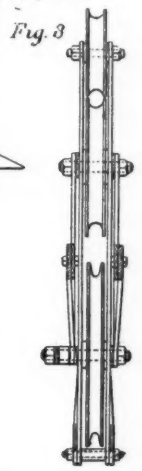


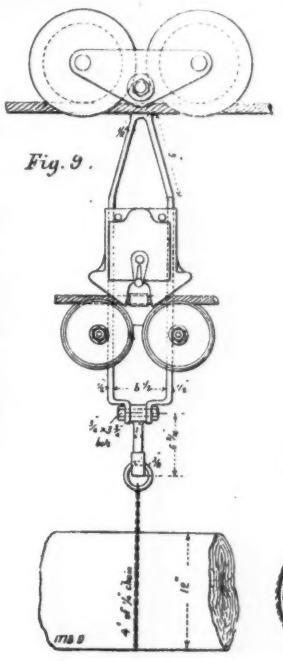


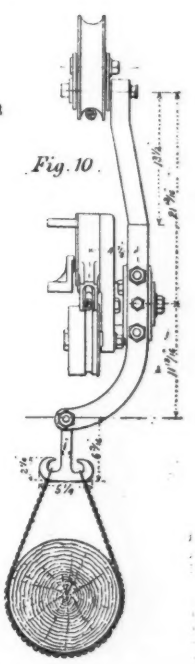


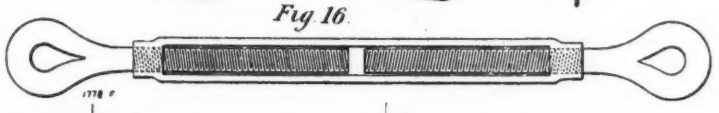


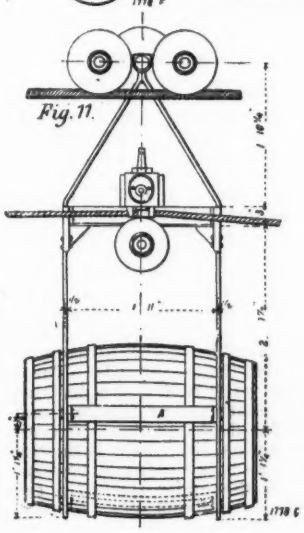


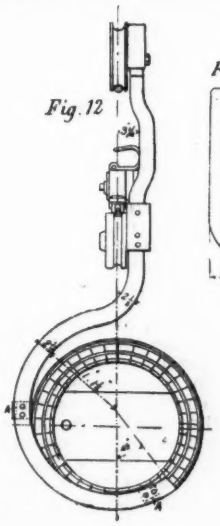


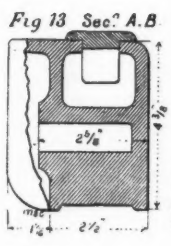


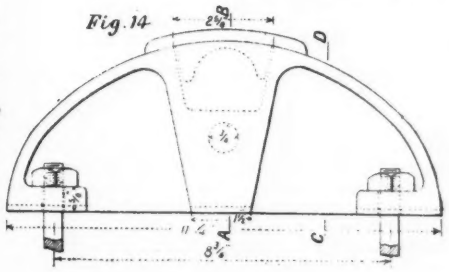


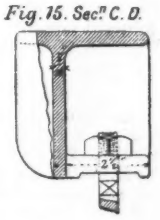


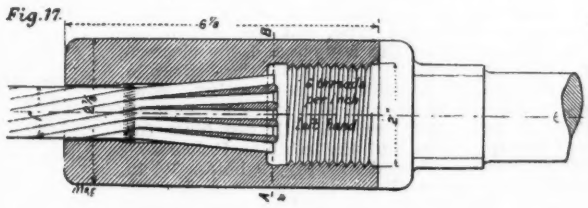












THE BLEICHERT WIRE TRAMWAY, MADE BY THE TRENTON IRON COMPANY.

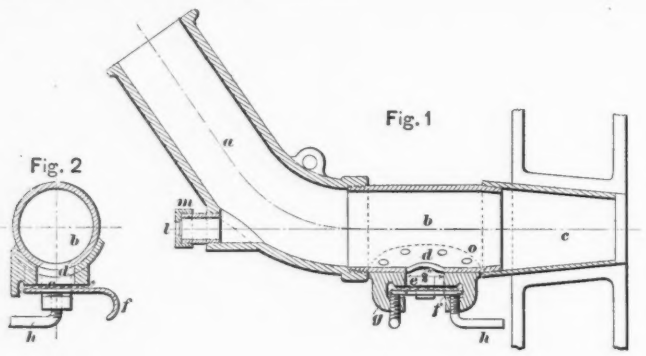
Figs. 28 and 29 are enlarged details of this grip. The detail for adjusting the tension on the cables is shown in Fig. 16, and Fig. 17 shows the method of connecting a cable and a rod for anchoring and other purposes.

(To be Continued.)

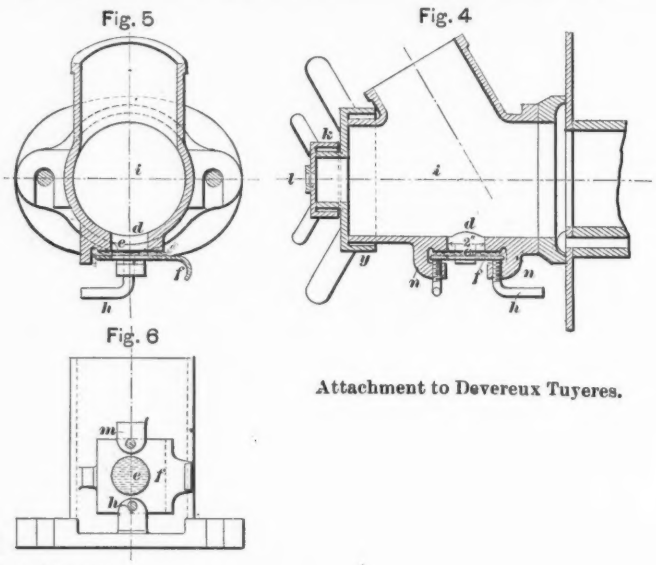
METALLURGICAL LEAD EXHIBITS AT THE COLUMBIAN EXPOSITION.

Written for the Engineering and Mining Journal by H. O. Hofman.

The mining engineer who visits the Columbian Exposition is gratified to find a department of mines independent and unattached to any other, housed in a commodious building of ample proportions and artistic appearance. On entering his first impression is of the richness and tasteful arrangement of the exhibits, and a close inspection shows the great variety of minerals and ores which have been gathered from all parts of the world and afford a rare opportunity for study. In turning, however, to the metallurgical division it is disappointing, and especially so in the part devoted to lead. It seems really a pity that the country which, next to Spain, is the greatest producer of lead in the world, and has the finest smelting and refining works, should represent this great industry in so inadequate a way. The leading works have done practically nothing at all, and the slight showing that is made comes entirely through the different States and Territories where the works are located. In this way the exhibits have been collected and placed with so little system that their educational value is almost, if not entirely, lost, although the management has tried to supply this deficiency by the aid of diagrams and drawings. These are, however, necessarily of so general a character that the connection between them and the exhibits has largely to be guessed at. In marked contrast are the methods of the foreign exhibitors, who have clearly explained by charts, pamphlets, etc., whatever they have sent.



Attachment to Ordinary Tuyeres.



Attachment to Devereux Tuyeres.

THE DAVIS SLAG ESCAPE.

It was intended that the whole metallurgical department should be located in the wide gallery (60 feet) running around all four sides of the building, but owing to the fact, referred to above, that the metallurgical lead exhibits were almost exclusively made by the several States and Territories as such, they are to be found, with few exceptions, on the ground floor.

It will be the aim of the following paper to review them under three general heads:

1. Apparatus; 2. American and Foreign Exhibits; 3. Processes.

APPARATUS.

The apparatus exhibited represents principally the smelting industry; to a very slight extent that of refining. A model of a circular water-jacket furnace for smelting copper ores, built in 1862 by Messrs. B. Williams & Co., is of interest as a bit of history. It resembles so much the 48-in furnace in common use to-day for the same purpose that it might be taken for a model of it.

The Chicago Iron Works, of Chicago, Ill. (southeast end of the ground floor), have two specimens of sampling apparatus; a sample-grinder which is of the usual coffee-mill type, but has a few improvements to facilitate the removal of the hopper and the cleaning and exchanging of the shoe and die; and the Brunton quartering shovel,* which much simplifies the cutting down of the sample when this is done by hand, and also gives as accurate results as can be obtained in any other way. A full-sized blast furnace, 33 by 84 in., is an imposing feature of the exhibit. It has four water-jackets made of low-carbon steel, and five tuyere holes, 3½ in. in diameter, on either side, showing a slight downward pitch. The cooling water of the jackets, introduced through the usual water-feeders, is discharged through wrought iron pipes into thin cast iron annular troughs (5¾ in. wide, ¼ in. thick), fastened to the four columns supporting the shaft, and passes off underground through 3-in. sandpipes. The crucible is enclosed at the sides by ⅜-in. boiler iron, at the ends by the usual cast iron plates, the whole being firmly tied by heavy rails. A novel feature is the manner of delivering the blast to the furnace. At the bustle pipe the usual canvas bag is replaced by an inclined sheet iron pipe. This has fastened to its lower end a cast iron casing having the wind gate. From the casing a cast iron elbow with ball joint is suspended by two spring bolts revolving around trunnions placed diagonally that the elbow may be swung sideways; the bolts press the ball of the elbow against the socket of the casing and keep the joint airtight. A cast iron tyere box with fusible plug for discharge of melted slag is fastened by means of four set screws to the jacket; on either side it has a tightening hook which presses the elbow, when swung back into position, against a rubber packing, making this joint also airtight. Of the accessory apparatus there is an ordinary slag pot with the usual paraboloid bowl, 22 in. in diameter and 18 in. deep; the wheels are 22 in. in diameter, have straight spokes and friction bearings. There is also an overflow pot to assist in the separation of matte from slag; the bowl is 30 in. in diameter and 18 in. deep; the wheels are 28½ in. in diameter, have staggered spokes, and also friction bearings. A positive pressure blower, marked No. 4, made by the Connersville Blower Company, Connersville, Ind., which resembles the well known Root blower, closes the list.

In the southeast part of the ground floor the well known firm of Messrs. Fraser & Chalmers, Chicago, Ill., has its extended exhibit, of which the lead-smelting apparatus forms but a small part. The sampling of ores is represented by two crushers, a Blake 15 by 9 in. and a Dodge 8 by 12 in., intended to crush the ore from the mine for the Bridgman mechanical ore sampler.† This machine, which came on the market only a couple of years ago, belongs to that class of sampling apparatus which takes the sample at short intervals from the whole width of a running stream of ore. Two types, called A and B, are exhibited. The former, of wrought iron, occupying a floor space 3 by 4 ft. and 7 ft. 6 in in height, gives two samples, the original and duplicate, thus furnishing an important means of controlling the operation. It has a capacity of from 15 to 25 tons of ore per hour and is easily cleaned. Type B is a small machine of cast iron; it occupies a floor space only 18 in. square and is 36 in. high. It gives a single sample and is used for cutting down either the main sample from machine A after it has been recrushed by rolls (the exhibit shows a pair of geared rolls 10 by 16 in.) or small amounts of finely crushed ore. Its capacity varies from two to four tons per hour. These machines have found much favor, and with reason, where they have been introduced. A sample grinder of the well known coffee mill pattern concludes the list of sampling apparatus. The smelting is represented by an imposing full-sized blast furnace, 42 by 120 in., a size much in use to-day. The jackets are cast iron and of six different patterns: front two, back two, side one and tapping-jacket one. A late improvement is to connect the jackets either in pairs or all together by means of short pieces of 1-in. pipe inserted below the water-feeders and joined by rubber hose, the advantage of the device being that if the jackets are all connected no single one can ever run dry, and if in pairs the danger is greatly lessened, as if the water inflow of one jacket, for some reason or other, is insufficient, it will be supplemented by its neighbor. The crucible of the furnace is enclosed in the usual cast iron plates, strengthened by ribs. The slag spout shows an improvement in being water-cooled, an interesting feature if we consider the amount and character of charge furnaces have to put through to-day. A beautiful device which must strike every smelting man with pleasure as soon as he looks a little closely at the furnace, is the Davies slag escape, as it is so simple, convenient and useful. It consists in an opening in the under side of a tuyere pipe or tuyere box closed by a linen or paper diaphragm. As soon as any slag entering the pipe or box touches the diaphragm it burns a hole in it, and the noise of the escaping blast calls the attention of the keeper to the accident as soon as it has occurred. The illustrations, Figs. 1 to 3 and 4 to 6, taken from working drawings furnished by Messrs. Fraser & Chalmers, give the necessary details. Figs. 1 to 3 show the escape attached to the common tuyere pipe; the

* For description and illustration see "Engineering and Mining Journal," June 20th, 1891.

† For illustrations see "Tran actions American Institute Mining Engineers," Vol. XX., p. 416.

cast iron elbow a, with peephole l, closed by cap m, is screwed to a piece of 4-in. wrought iron pipe b, which has the opening d for the escape of the slag, and is riveted to the conical brass nozzle c entering the furnace. To the under side of b is riveted the flange o, with its lugs g. These receive in a suitable recess the perforated piece of sheet iron f, having on its upper surface a bit of linen or paper e, and the screws h press it against the seat, thus making an airtight joint. If slag entering the tuyere pipe burns a hole in the diaphragm, this can be replaced in a moment by loosening the screws h and drawing out the sheet iron. Figs. 4 to 6 represent the slag escape attached to the Devereux tuyere box 1, which is closed at the back by the cover j, the collar of which has a cap k, with the peephole l in the center. The cylindrical tube with diagonal bore, another characteristic of the Devereux tuyere box, is not shown. The slag escape differs from that of Figs. 1 to 3 in having the lugs n cast on the wind box, and not riveted to it, thus greatly simplifying and cheapening the arrangement. The accessory apparatus are represented by two Root positive blowers Nos. 6 and 7, which have respectively a displacement of 42 and 65 cubic feet of air per revolution; the former machine is driven by a horizontal engine, the latter by a vertical engine resting on the same bed plate. A typical slag pot 24 in. in diameter, 16½ in. deep, with wheels 24 in. in diameter, having straight spokes and steel roller bearings and several molds holding about 100 lbs. of lead conclude the list.

The apparatus used in refining are represented by samples of graphite retorts and crucibles, basic bricks and a drawing of the Roesing lead pump.

The accompanying drawing, Fig. 7, shows the largest retort made by the Joseph Dixon Crucible Company, of Jersey City, N. J.; the next smaller size exhibited is 35 in. high, 7½ in. wide at the neck, 19¾ at the belly and 13½ at the bottom.

The retorts of the Phoenix Manufacturing Company, of Taunton, Mass., are a little higher and narrower, the dimensions varying from 30 to 40 in. in height and from 15 to 17 in. in width. The retorts of Robert J. Taylor & Son, of Philadelphia, are 36 in. high, 7½ in. wide in the neck, which is 6 in. long, 19 at the belly and 13 at the bottom.

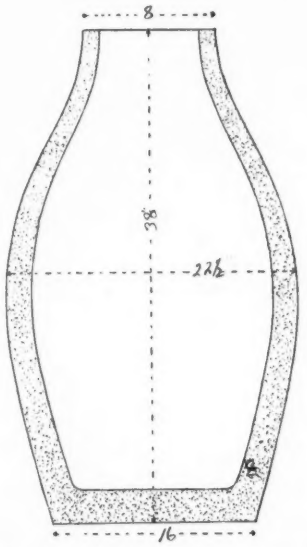


FIG. 7.—THE DIXON GRAPHITE RETORT.

The last exhibit of retorts is that from the Walker Mining Company, of Ottawa, Ont., and Graphite City, Quebec. They are 36 in. high, 8 in. wide at the neck and 18 in. at the belly. A great advance has been made in the manufacture of retorts. This is easily seen if we consider that their capacity has been raised from 200 to over 1,000 lbs. of zinc crust and their life from 14 charges to an average of 36, running even as high as 40 charges.

An interesting exhibit is that of the Spaeter Basic Bricks, of Veitsch, Styria. They have, according to an analysis by Wedding,* the following composition: SiO_2, 3·40; Al_2O_3. 0·82; Fe_2O_3, 7·79; CaO, 1·76; MgO, 85·30; total, 99·07. The bricks are not only well burnt, but slightly sintered, so that they can stand exposure to the air any length of time without slacking or deteriorating as would ordinary dolomite bricks. They have been used to line a cupelling furnace, and gave great satisfaction as far as durability was concerned, but their price was too high. The Pittsburg Testing Laboratory, Ltd., Pittsburg, Pa., the agent for this country, quotes, July 13th, 1893: Magnesite brick, normal size, $47.50 per ton, c. i. f., New York; calcined magnesite, $22 per ton; crude magnesite, $14.74, a price which may induce home manufacturers to replace the imported article with a native product in view of the market it would find with the manufacturers of basic steel, in addition to its use in the concentrating of copper matte and the refining of metallic copper.

The Roesing steam pump of the German exhibit is a very simple, ingenious device for removing the molten lead from kettles to molds or other receivers which stand on the same level. It is described in the "Engineering and Mining Journal," November 28th, 1885, and its present improved form illustrated in the "Berg-und Huettenmaennische Zeitung," 1889, page 262. It has found much favor in the older European works, most of which are built on one horizontal plane. The refining works in this country being all built on an inclined plane, the kettles are better emptied by means of the Steitz siphon. In any case where a siphon cannot be applied the steam pump remains the best alternative.

(To be Continued.)

* See Hofman "Engineering and Mining Journal," May 27th, 1893, and "Transactions of the Institution of Civil Engineers of Great Britain," vol. 112, page 381.

ABSTRACTS OF OFFICIAL REPORTS.

TAMARACK MINING COMPANY, MICHIGAN.

The report for the year ending June 30th, 1893, shows gross receipts from sales of copper, $1,852,252 (11·53 cents per pound); interest, $5.022; total, $1,857,274. The expenses were for mining, $852,091; smelting, $284,062; total, $1,136,153, leaving a mining profit of $721,121. Other expenses were $113,733, and dividends, $600,000, leaving a surplus of $7,388. Expenditures for new construction wire, $152,928. The product of the mine in mineral was 21,976,368 lbs.; in refined copper, 16,061,106 lbs., or 73·08%. The cost of copper per pound was: Mining, 5·31; smelting, 1·77; new construction, 0·95; total, 8·03 cents. This compares with 7·64 cents in 1891-92, and 9·11 cents in 1890-91.

The report says the winze sinking under the 16th level has turned out better than anything seen in that part of the mine for a long time. The winze on the lode to the 18th level is also good. On the Osceola amygdaloid the quality has been irregular, but enough copper was obtained to pay for working. It is expected to strike the conglomerate in less than a year. The mill has run without interruption, stamping 315,925 tons for the Tamarack and 55,511 tons for the Kearsarge, at a cost of 32·836 cents per ton.

RAND CENTRAL ORE REDUCTION COMPANY, TRANSVAAL.

The first annual report of this company covers the year ending June 30th last. The total receipts for the year were £10,371, of which £7,613 were from profits on cyanide operations, £2,320 from chlorination works, and the balance from miscellaneous sources. Expenditures were £5,702, including £2,628 written off depreciation of plant.

The works of the company include a complete chlorination plant with a capacity of 4,000 tons concentrates per year, and so arranged that this capacity can be doubled by the addition of one furnace; four cyanide plants complete and in working order with a capacity of 20,000 tons per month, while an additional cyanide plant capable of working 15,000 tons per month is under construction. The plants have been erected from the design and under the supervision of Mr. Charles Butters, who is managing director. There are also the necessary machine and repair shops, boarding houses and other buildings, conveniently situated near some of the most important mines on the Witwatersrand, securing an ample supply of ores. The stock of tailings bought amounts to 350,000 tons, while contracts have been concluded for a further quantity of about 200,000 tons. Since the completion of the works the total quantity treated has been 1,382 tons of concentrates and 33,500 tons of tailings. From the chlorination works, running four months, 5,121 oz. of gold were obtained, and from the cyanide works, in operation for eight months, 8,711 oz., a total of 13,832 oz. The operations for the current year will be very much larger as the plants are now in full working order, while additions are being made.

In combination with Messrs. Siemens & Halske, of Berlin, a new process is now being tested which, it is expected, will give additional advantages over the present system applied of the treatment of tailings. The objects of the company, moreover, are not limited to the treatment of gold-bearing ores, concentrates and tailings, but residues, slags and other combinations can be treated, and experiments have also been made in the treatment of silver ores, the ultimate object being to be ready for any kind of metallurgical operation in a country where new discoveries are constantly being made.

COMSTOCK TUNNEL COMPANY, NEVADA.

The report of this company for the year ending August 31st, 1893, shows receipts of $48,443 for royalty; $10,903 for transportation; $11,655 for extra work done for the Occidental and other companies; $567 for rental, interest, etc.; a total of $76,570, which, added to the balance of $78,082 on hand at the commencement of the year, makes a total of $154,652. The payments included $55,232 for working expenses and salaries in Nevada; $20,068 for extraordinary expenses; $11,792 for cost of New York office; $5,933 for legal expenses, and $26,365 for interest paid, making a total of $121,391, and leaving a balance of $33,261 on hand on August 31st. The balance sheet shows that the stock of the company is $4,000,000, and there are $1,908,000 bonds outstanding.

The superintendent reports that about 550 ft. of the main tunnel were retimbered and the timbering was also repaired in many places. The track in the tunnel was relaid and repaired with new ties for 13,500 ft., this expenditure being necessary on account of the substitution of a locomotive for mules in hauling. Receipts in transportation have been light, as the Savage, the Hale & Norcross, the Gould & Curry and the Best & Belcher have not been sending any rock out, preferring for the present to hoist it from the levels where they are now working. In the north lateral tunnel 245 ft. were retimbered and a switch, 290 ft. long, was laid down. There was also 182 ft. of tunnel retimbered in the south lateral, and other repairs made. Other work done included the extension of the Occidental drift 418 ft., with branches to and across the vein for 466 ft. altogether. It is stated that the vein here shows a good width and that it can be worked to advantage through the tunnel. Explorations are also being carried on in the Brunswick lode with fair promise, although the vein has not shown any large body of paying ore as yet.

The president reports that the company has now no floating debt. The coupon maturing May 1st last was passed and the November coupon will also have to be passed. The year has been unsatisfactory for the company, owing to the general conditions on the Comstock, which are well understood. The total tonnage for the year was only 91,423 tons, or 61,386 tons less than that for 1892, which was then considered very small. The only encouraging feature for the present, it is thought, is the large proportion of gold yielded by the Comstock mines. The

company has taken all possible steps toward retrenchment which are consistent with proper care of the property.

The president also recommends the formation of an independent company for the purpose of developing the resources of the tunnel, extending the lateral tunnels, running drifts and taking other steps to explore the ground in hope of striking ores which can be worked directly in the company's interest. Either this should be done, or, in place of it, he suggests a union of all the interests on and about the Comstock lode, including the tunnel company, which are concerned in the extraction and reduction of ores; that is, a consolidation of all the mines, mills and the tunnels. This would be a difficult task, but he believes in the end it can be brought about.

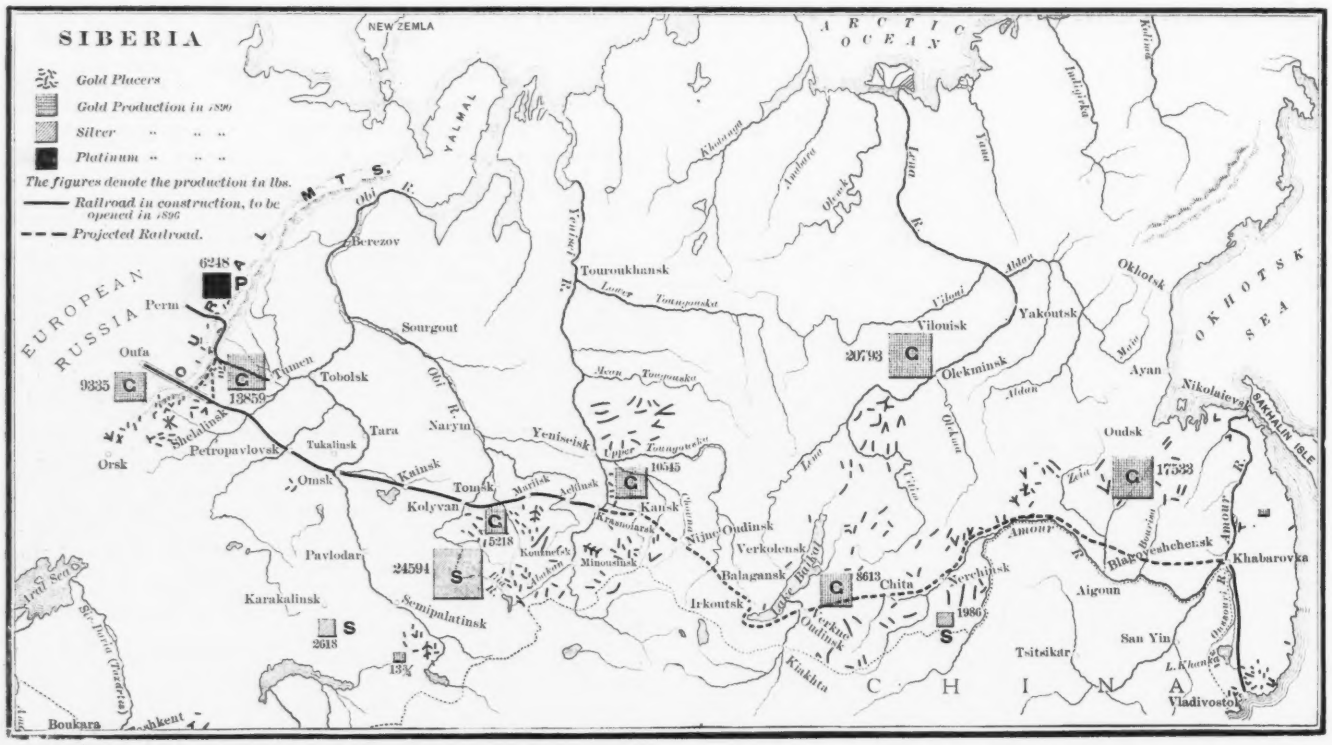
Harveyized Armor Plates.—It is said that our naval authorities find themselves confronted with a problem in connection with the use of Harveyized armor plates. It is probably not insurmountable, however. Experimentally the Harvey plate, it is generally conceded, has beaten all others, but the question whether the plates can be successfully fastened to the sides of ships without impairing their efficiency appears to have been completely overlooked. With the plates used up to this time there has been no difficulty in doing the necessary drilling and cutting, but the Harveyized plates are so much superior to the plain steel and nickel steel plates in hardness that no ordinary tools can be successfully used against them. Cutting out the necessary spaces and drilling the necessary holes for fastening them in place can be done only after another treatment which softens the steel. This can be done, but the cost of the Harvey plate, already enormous, will be materially increased by the extra labor and time involved in putting it in place. It is also a question whether the operation of re-treating certain parts of the plate so as to make cutting it possible does not weaken the plate to an injurious extent.

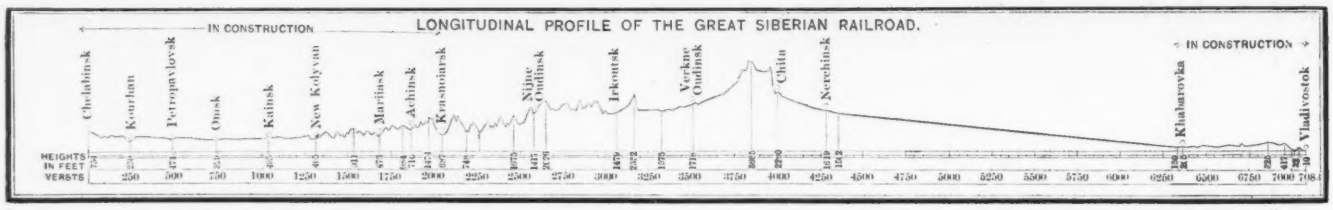
Basic Iron Production in Luxemburg.—The prediction that the Longwy-Luxemburg iron district would become the center of basic pig production in Europe, says the "Colliery Guardian," seems to be in a fair way of realization. The Ferry-Curique Company, of Villerupt-Micheville, in Meurthe-et-Moselle, has been reconstituted, and the erection of two new blast furnaces, 25 m. (82 ft.) high, to be completed within the year, is now decided upon, thus bringing up the total number to four. A new furnace 20 m. (66 ft.) high, at Longwy-Bas, with all the latest improvements, which cost, with its accessories, about 1,500,000 francs, was blown in January 1st of this year, and has worked regularly ever since. There are four hot-air stoves on the Cowper system, and the blowing engines were supplied by the Societe Marcinelle et Couillet, of Charleroi, Belgium. A second furnace has been pushed forward, so that its foundations have already reached the ground level. The Societe des Hauts-Fourneaux et Forges de Dudelange, Luxemburg, the whole of whose basic pig out-turn is converted into finished or semi-finished steel on the spot, has declared a dividend of 7½% for the fiscal year.

GOLD IN SIBERIA AND THE TRANS-SIBERIAN RAILROAD.

Written for the Engineering and Mining Journal, by A Zdziarski.

The accompanying map, which is compiled and arranged from official sources, shows the location of the gold, silver and platinum mines of Siberia, and at the same time their relation to the Trans-Siberian Railroad, which is now actively in progress. To speak first of the railroad—which will be the longest line in the world—it will extend from Chelabinsk, in the Eastern Oural, and now the terminus of the Oural Railroad which connects it with the lines of European Russia, across Siberia to the port of Vladivostok on the Pacific, a distance of 4,700 miles. With branches already surveyed and located, the total length will be 5,000 miles, and the estimated cost is $200,000,000. The sections indicated on the map, on which work is now well advanced, and the completion of which is set for 1896, are the Pacific section, from Vladivostok to Grafskaia, 200 miles, with a branch of 160 miles to Kharbarovka; and the western section, from Chelabinsk to Pochitanka, 1,080 miles, with a branch of 60 miles to Tomsk. The intermediate sections, it is expected, will not be completed until 1904, although





coal is found at several points and the mines on the line, some 50 miles north of Vladivostok, already supply the Russian steamers on the Pacific with fuel of a quality claimed to be equal to the best Japanese coal. There are also mines of copper and lead near the Pacific section which are at present too remote from transportation for profitable working, but which will be developed when the railroad reaches them. On the eastern border of the great Steppe there are many salt lakes.

The Russian Government has ordered a systematic geological survey of the country through which the railroad will pass, and already mining engineers have been assigned to the staff in charge of construction or location on each division of the railroad. These mining engineers are charged with the examination of the country and with making test borings wherever it may seem to be advisable.

The smaller engraving shows the profile of the road. The highest point on the line will be 3,700 ft. above sea level, and is in the Shoidak Pass, where the road will cross the Jablonnovoi Mountains on its passage from the watershed of Lake Baikal into the upper valleys of the Amoor, on the Pacific slope of Siberia. The grades are generally favorable, and the road, when completed, can be worked more cheaply than any of the American transcontinental lines.

work has already been begun on the tunnels, rock cuttings and other difficult points.

As shown by the map, the gold and silver mines, while some of them are near the line of the road, are not generally directly on it. There is no doubt, however, that the more important mining districts will be connected with the railroad by branch lines. It may be added that gold and silver do not constitute all the mineral wealth of Siberia. There are important deposits of iron ore, some of which are already worked in a small way in the forges of Achinsk, Mariinsk and other places;

The map shows graphically the production of gold, silver and platinum in each district in the year 1890, indicating the relative importance of the districts. The figures give the production for that year in pounds.

The production of gold in Russia in the year 1892 was large, being valued at $27,000,000. In the Oural Mountains and in Siberia the output was 42,619 kg., being 3,588 kg. or 9% more than in 1891, and 5,997 kg. or 16% more than the average for 10 years past. The increase in the Ourals was due to the private placer workings. Two new placers were opened by Messrs. Polovtzev, while at other points workings were extended, new machinery put in and the number of workmen increased. In the Ourals the increase over 1891 was 819 kg., or 7%; of the gain 361 kg. came from the Miass placers.

In Siberia no new placers were discovered, but in the Tomsk district the production of gold was increased by 377 kg., or 5%. In the Irkoutsk district the production increased 12%, chiefly because of the large output of the Lena placers, which reached 10,831 kg., being 1,827 kg., or 20% more than 1891. Quartz or vein mining was begun in August, 1891, by Mr. Ivanitzkoi, near Mariinsk, in the Tomsk district, and the product of this mine formed about one-third (136 kg.) of the gain reported in that district.

In general it may be said that the total increase of 3,588 kg. was due, not to new discoveries, but to the enlargement of old ones, the introduction of new machinery and improvements and the increase in number of workmen. The gold industry of Russia is still in a rudimentary condition, and can, without doubt, be much increased when more enterprise is shown, improved methods adopted, and development systematically carried out. There is no doubt that the economic conditions of Siberia will be much improved when the railroad is completed, and that gold mining will be extended.

In 1892 the output of platinum was 279 poods (4,570 kg.), which was about 8% more than in the previous year. The price varied from 5,500 to 7,500 rubles per pood, according to quality. Most of the metal came from the mines of Schuwalov, Zolowzev, Pastnehov, and the imperial works in the northern Oural, and from the works of Count San Donato, in the Middle Oural. The most important platinum refining establishment in Russia is the Teutelev chemical laboratory, in St. Petersburg.

A New Armor Proving Ground.—The Bethlehem Iron Company has almost completed the new proving ground for armor plates, near its works, at Bethlehem, Pa. There are already in position one 8-in., one 10-in. and one 12-in. gun; two of these guns belong to the War Department and one to the Navy. The tests are under charge of Lieut. J. T. Meigs, who was considered one of the best ordnance officers inv the Navy, but was retired recently on account of color blindness, which prevented him from passing the physical examination for promotion.

MINING AT THE COLUMBIAN EXPOSITION.

Specially Reported for the Engineering and Mining Journal.

FORGING AND SMELTING BY ELECTRICITY.

Of the many interesting exhibits in Electricity Building, at the World's Fair, one which attracts the close attention is the exhibit of the Electrical Forging Company, of Boston, Mass., which is shown in the engraving. A bar of iron or steel, placed between the copper jaws of the electrical forger can be raised to a welding heat in less than two minutes. The inventor, Mr. Geo. A. Burton, of Boston, is already known in connection with the stock car which he designed. A brief description will show the means applied to secure the result. The generator is an alternating machine of 75 H. P. capacity, and produces a primary current of 1,600 to 1,800 volts and 25 to 35 amperes.

From the generator the current is conducted to the larger transformer, from which project the copper conductors leading to the various styles of jaws or electrodes, between which the bars to be heated are placed.

The power of the transformer is such that the current is reduced from the 1,600 or 1,800 volts to 25 to 30 volts, while the amperage is proportionately increased to 8,000 or 10,000. The generator is so constructed that the alternations in the current are unequal, and produce a maximum molecular agitation, with a minimum of power, in accordance with the inventor's theory. For the purpose of regulating the current, to prevent loss, in a large apparatus, when only a small portion of its capacity is required, the exciter is governed by a single rheostat; so that the transformer calls upon the generator only for that amount of energy necessary to accomplish the work in hand. This, it is claimed, is done without loss of power. The work itself is the governor, and limits the supply of current to the amount required.

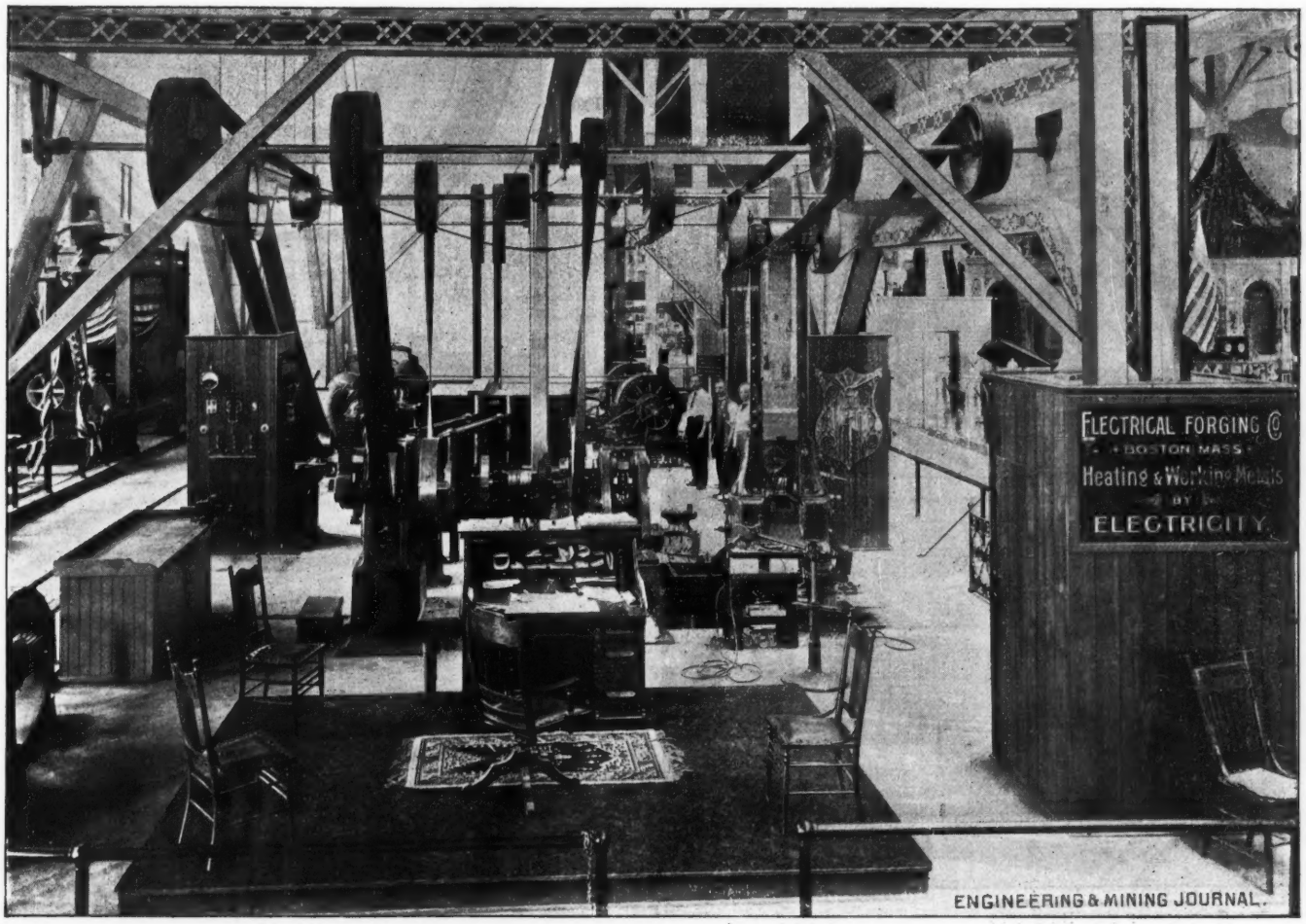


Exhibit of the Electrical Forging Company at Chicago.

When no substance is undergoing treatment, only sufficient current is generated to overcome the friction in the apparatus, or about 1 H. P.

The current supplying the heat is applied only so long as needed, and all the heat thus generated is expended upon the metal. The operation is quick, metals being heated and shaped in 40 seconds, showing a saving in time anl labor.

To the ordinary spectator, probably, the most interesting performance is the heating of a bar of iron by contact with water. A piece of iron is held in a pair of tongs, to which an electric wire has been attached. The water is already electrically connected so that the circuit is closed the instant the metal touches the water. In 30 seconds the iron is at a white heat. The voltage of the current necessary for this operation is so low, it is claimed, that if it, in its entirety, passed through the body of the operator it would prove harmless.

The principal advantage claimed for this method is the saving of the space needed for heating furnaces, etc., as the current necessary can

be taken from an overhead conductor of a street railway, or from the circuit of an arc or incandescent lighting system and without the use of a rheostat; for the metal undergoing treatment is the required resistance and also the governor.

As to the cost of this process, as compared with ordinary methods, no exact figures are attainable. It is probable, however, that, as yet the advantage, as in electric heating, is in convenience of application rather than in cost. The inventor, it is stated, is at work on a method of applying electricity to the smelting of ores, which he hopes soon to make public.

THE BRISTOLS MANUFATURING COMPANY'S EXHIBIT.

One of the attractive exhibits in Machinery Hall, Section 25, is that made by the Bristols' Manufacturing Company, of Waterbury, Conn., which is shown in our illustration. Since its establishment in 1889, this company has developed an extensive business with Bristol's recording pressure gauges and steel belt lacing. The line of gauges now comprises over 20 different ranges from vacuum to 1,500 lbs. per square inch, and adapted to record continuously, day and night, pressures of air, gas, steam, water and liquids. The corner space occupied is diagonally spanned by an excellent imitation of a stone arch, the facing of fine leather and the stones fastened together with the company's patent steel belt lacing. To each of the stones is attached one of their gold-plated recording gauges, every alternate instrument being provided with an electric light. On one pillar supporting the

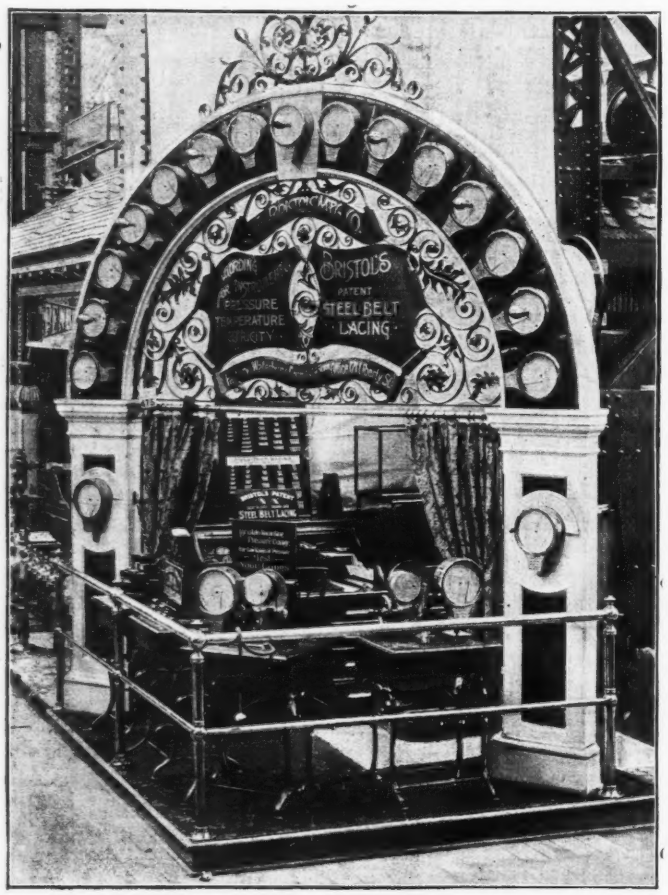


EXHIBIT OF THE BRISTOL'S MANUFACTURING COMPANY.

arch is a gauge in operation recording the pressure of steam used in the building. On the pillar of the arch is one of the new recording voltmeters, in operation recording continuously the voltage of the alternating current, which supplies the lights. Models of the different recording instruments are arranged on tables so that visitors may examine the construction. For the high pressures a hand screw-pump is provided, but for low pressures a gauge is fitted with a mouthpiece. A new recording thermometer is also shown in operation, which will be used in connection with a new recording pyrometer now being prepared. Outside of this exhibit, there are eight of Bristol's recording gauges in operation at different points within the Fair grounds.

The new recording voltmeter above referred to for alternating or direct currents has not been previously described. Fig. 1 shows the instrument complete, ready for connection, and Fig. 2, with the front of case removed; the simple construction and manner of operation will be readily understood. The coil A is mounted on the spring knife-edge supports D and E, and free to move toward the parallel and stationary coil B, when they are mutually attracted to each other by a current passing in series. The current is conducted to the movable coil A through the supporting springs D and E, and this, together with the fact that the moving coil is mounted on frictionless spring knife-edges, renders the instrument extremely sensitive to the smallest changes of voltage. The marking arm F is attached directly to the spring E, and partakes of its motion, recording the changes of voltage on a uniformly revolving chart. It will be observed that the instrument is constructed on the electric balance principle without permanent magnets. The divisions on the chart are on an increased scale in the vicinity of the voltage to be maintained, thereby making it possible to note the variation of one volt. The chart, Fig. 1, is intended for a 110-volt circuit. The coil C is an auxiliary resistance. With the alternating current voltmeter the auxiliary resistance is furnished in a separate rheostat, which may be adjusted to suit the rate of alternations of the current to be measured.

Several of the instruments have been in use in large electric light stations for the past three months, and are giving the highest satisfaction. One of the voltmeters is on exhibition in Electricity Building, at the Exposition. Two of them, one alternator and one direct current, are being used by the Committee on Awards in connection with the life tests of incandescent lamps.

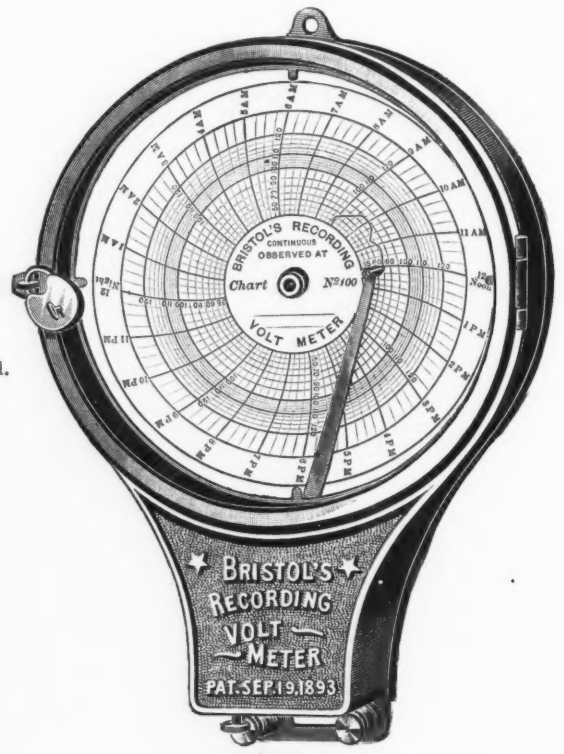


FIG. 1.

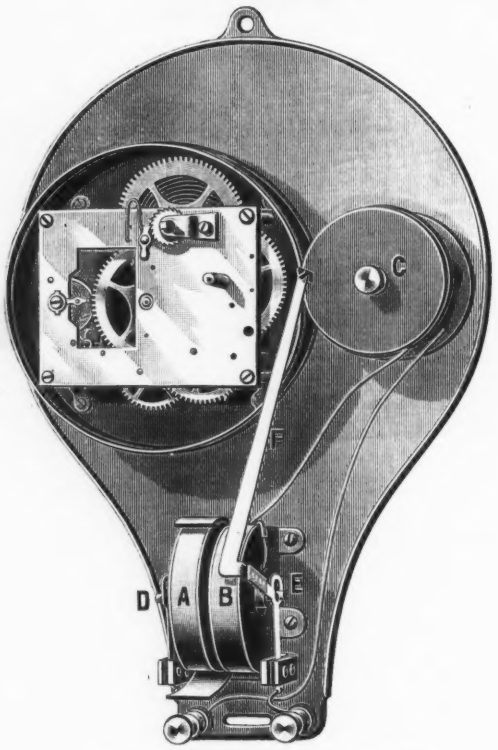


FIG. 2.

BRISTOL'S RECORDING VOLTMETER.

The Auer Gas Lamp.—The use of the Auer incandescent gas lamp has rapidly increased since important improvements in its construction have been made. It is said that there are 90,000 or 100,000 burners in Berlin alone. The lamp gives a great volume of light, with small consumption of gas and slight development of heat; the light is, moreover, remarkably steady.

BASIC STEEL MANUFACTURE AT WITKOWITZ, MORAVIA.*

By Paul Kupelwieser.

This paper stated that, if there was left out of consideration the small amounts of steel which were manufactured for special purposes in crucibles and refineries, it was plain that much the greater quantity of steel and ingot iron was produced in the Bessemer process with: 1. An acid slag, when the pig iron available contains only a small amount of phosphorus. 2. In the basic Bessemer process, with calcareous slag, when the pig iron employed contains at least 2% of phosphorus; or by melting in the Siemens-Martin process with 3. An acid slag, when the scrap and pig iron available contains a small amunt f phosphorus; and 4. In the basic Siemens-Martin furnace with calcareous slag, when the pig iron employed is melted with scrap, which is too phosphoric for the Bessemer process, and the acid Siemens-Martin process, and does not contain enough phosphorus for the basic Bessemer process. The cost of conversion of pig iron into steel was lowest in the ordinary Bessemer process, considerably higher in the basic process, higher still in the acid Siemens-Martin process, and highest of all in the basic Siemens-Martin process. The fact that during the last 10 years the conversion in the Siemens-Martin process had, in spite of its greater cost, become rapidly and widely adopted, was to be explained by the circumstance that few countries were able to obtain large quantities of pure ore at cheap rates; and also that open-hearth steel works could be started with smaller plant, and consequently less expenditure of capital, and might be enlarged to meet the demand, whereas the manufacture of steel in the Bessemer or basic Bessemer process involved the employment from the beginning of expensive plant, and required a large output to enable it to be carried on economically.

There was another circumstance which had conduced to the rapid increase of the number of Siemens-Martin steel works. Although he believed it was possible to obtain products with all these processes of equally good qaulity, still, the slow oxidation, particularly in the later stages of the process, in the Siemens-Martin furnace, enabled an equable quality of material to be obtained with greater certainty. A rapid oxidation, such as took place in the Bessemer converter in the first stages in the process of conversion into steel, and a slow oxidation during the later stages, such as occurred in the Siemens-Martin process, would appear to be the method best suited for the manufacture of an equable product privided it were found practicable to carry out this combination, which was, in fact, a combination of the Bessemer and Siemens-Martin processes. Such a combined process had been employed in Witkowitz for about 18 months, and the results obtained outweigh any of the disadvantages attaching to the process. The pig iron obtainable in Witkowitz contained too much phosphorus for use in the ordinary Bessemer process, while it did not contain sufficient phosphorus for the basic process; and further, a supply of cheap scrap was not available. The problem, therefore, was to convert into steel or ingot iron of good quality a pig iron containing too much phosphorus for the Bessemer process and too little for the basic Bessemer process, without the use of scrap. The author then gave a number of data showing that the consumption of coal, lime, and ore, and the conversion of pig into steel in the basic Siemens-Martin process, were so low as to reduce the cost of conversion about $2.50 per ton (although they only use some 56% of melted pig), in comparison with the cost of conversion in the Siemens-Martin furnace from the commencement, and only amounted to the same as in the basic Bessemer process when carried out on a large scale. This combination of processes enabled the conversion of pig into steel to be effected in the cheapest possible way under those unfavorable circumstances, in which the pig contained too much phosphorus for the acid Bessemer process and too little for the basic Bessemer process. This method of working also enabled the pig iron to be employed directly from the blast furnace with good results in works where it was possible to do so, and where it was previously done, but abandoned for certain reasons.

The method adopted at Witkowitz is briefly described as follows: Pig iron from a blast furnace (sometimes from two blast furnaces) is run into a ladle, and transferred to a Bessemer converter. The pig varies from light gray to white, and as it contains only a small quantity of silicon, 0·8 to 1·2%, is liable to be ejected from the converter to a considerable extent, and hence only small charges of about four tons are blown. The oxidation in the acid Bessemer converter is only continued till the pig is desiliconized, which takes place in about five or six minutes. The product thus obtained lies somewhere between white iron and very hard steel. These short blows in the Bessemer converter only attack the lining very slightly; over 1,000 charges are often made in the same converter, and more than 100 with the same bottom. The slag contains all the silicon of the pig iron and a large proportion of the manganese, but no phosphorus, and is employed as a non-phosphoric manganese ore in the manufacture of ferro-manganese. The completely desiliconized product, which, however, still contains some manganese and a considerable amount of carbon, is introduced into a ladle, taken to the Siemens-Martin furnace, and run into it rapidly through a hole low down in the side.

As two blast furnaces are often unable to supply sufficient pig for three Siemens-Martin furnaces, about 40% of cold pig and 60% of melted pig (yearly average) are added with each charge. It is plain that running in the melted pig into the Siemens-Martin furnace is more convenient and less expensive than charging the furnace with solid material. But this running in of the pig also requires much less time, and avoids the cooling down of the furnace, which would otherwise take place. As the material which is run in in the molten state is completely desiliconized, it does not attack the basic lining of the furnace, and a smaller proportion of lime suffices to keep the slag in the furnace basic; the time required for working a charge is consequently considerably diminished, the amount of iron taken up by the slag is also less, while the expenditure of fuel and cost of wages are, owing to the rapidity of working, much smaller.

* Abstract of paper read at the September meeting of the Iron and Steel Institute of Great Britain.

RECENT DECISIONS AFFECTING THE MINING INDUSTRY.

Supreme Court of Oregon.

Recovery of Possession of Mining Claims.

By the Revised Statutes of the United States, all valuable mineral deposits on the lands of the United States, and the lands on which they are found, are declared to be open to exploration, occupation and purchase. The mode of locating such lands as mining claims is fully provided for, and the locators are granted the exclusive right of possession and enjoyment of the surface included within the lines of their location. A valid and subsisting location of mining lands, made and kept up in accordance with the provisions of the Statutes of the United States, has the effect of grant, by the United States, of the right of present and exclusive possession to the lands located. The Statutes of the United States provide that upon the performance of certain conditions the discoverer of a mine becomes entitled to a patent. If all these conditions have been performed, the full equitable title is vested in the discoverer, and all that the government retains is the naked legal title in trust for the equitable owner. If only partially performed, he has an absolute right of possession, and an inchoate title, which further performance will perfect and complete. This possessory right is declared by the statutes, and decisions of some of the States, to real estate title, and as such passes to the heir, and is subject to seizure and sale. In other States no statute exists declaring such possessory rights or right of possession to a mineral claim to be real estate title. The rights given under the United States Statutes are possessory, and do not confer title, but entitle a party who, having made and marked his discovery, and performed and kept up the work necessariy to a valid and subsisting location, for the purpose of developing the mine, to the exclusive possession and enjoyment thereof against the whole world. As this right of possession entitled the party to work the mine, take out its ore, and appropriate it to his own use and profit, it is a valuable right, and protected by the law. Such being the case, whoever wrongfully deprives him of its possession will be adjudged to restore it in an action for its recovery. Hill vs. Hill. 33 Pac. Rep., 809.

Pig Iron in Germany.—The production of pig iron in Germany for the eight months ending August 31st is reported at 3,135,679 tons, a decrease of 55,509 tons, or 1·8%, from the corresponding period in 1892.

PATENTS PUBLISHED IN GREAT BRITAIN.

The following is a list of patents published by the British Patent Office on subjects connected with mining and metallurgy:

WEEK ENDING SEPTEMBER 30TH, 1893.

14,124 A of 1892. Coal Cutting Machines. F. Hurd, London.
15,713 of 1892. Production of Antimony. J. B. Alzugaray, London.
16,300 of 1892. Electrolysis of Fused Electrolytes. H. H. Frei, Zurich, Switzerland.
16,408 of 1892. Method of Using Aluminum in Purifying Iron and Steel. G. F. Thomson, Newport, Essex.
18,496 of 1892. Artificial Production of Gem Crystals. Dr. J. Morris, Glasgow.
19,727 of 1892. Eliminating Sulphur and Phosphorus from Molten Iron and Steel. H. J. Phillips, Ebbw Vale.
19,812 of 1892. Obtaining Ammonia Chlorine and Hydrochloric Acid from Ammonium Chloride. L. Mond, Northwich.
19,893 of 1892. Pulverizers and Ore Crushers. Ga M. Arnaud, Paris.
20,269 of 1892. Manufacture of Sulphurous Acids and Sulphites. M. P. Hatschek, London.
21,148 of 1892. Miner's Picks. W. Owen, London, and W. K. Berkenshaw, Derby.
14,910 of 1893. Method of Using Quicksilver as a Cathode. P. Jensen, London. (A. S. Larsen, Christiania, Norway.
15,370 of 1893. Machines for Washing Mineral Substances. F. H. Brooke, Sheffield.

PATENTS GRANTED BY THE UNITED STATES PATENT OFFICE.

The following is a list of the patents relating to mining, metallurgy and kindred subjects issued by the United States Patent Office:

TUESDAY, OCTOBER 3D, 1893.

505,806. Metallic Conveyor. James B. Allfree, Indianapolis, Ind.
505,809. Apparatus for Making Oxygen. Robert D. Bowman, London, England.
505,819. Extraction Apparatus. Samuel W. Cochran, Lambertville, N. J.
505,846. Process of Separating Metallic Nickel. Pierre de P. Ricketts, New York, N. Y.
505,864. Coating Aluminum and Aluminum Alloys. George Wegner and Paul Gührs, Berlin, Germany.
505,895. Apparatus for the Electrolytic Production of Soda and Chlorine. Elisha B. Cutten, New York, N. Y.
505,902. Exhaust Fan. Robert Leslie, New York, N. Y.
505,904. Method of and Apparatus for Separation and Settling Molten Metal. James W. Niell, Salt Lake City, Utah.
505,922. Swinging Guide for Rolling Mills. Thomas Morrison, Duquesne, Pa.
505,940. Steam Boiler. Joseph A. Eno, Newark, N. J.
505,955. Metal Forging and Shaping Press. Benjamin F. Peacock, Anniston, Ala., and Francis T. Peacock, Sparrow's Point, Md.
505,956. Calcining Apparatus. Walter S. Pierce, New York, N. Y.
505,973. Apparatus for Pumping Gas. Charles W. Buerkle and Bernard A. Buerkle, Jr., Pittsburg, Pa.
505,986. Iron Albumen Preparation and Mode of Making Same. Pio Marfori, Ferrara, Italy, and Oswald Schniedeberg, Strasburg, Alsace. Assignors to C. F. Boehringer & Soehne, Waldhof, near Mannheim, Germany.
505,998. Apparatus for the Manufacture of Gas. John B. Archer, Washington, D. C.
506,027. Oil Burning Apparatus. Fred L. Babcock, Terra Cotta. Assignor of one-half to the American Terra Cotta and Ceramic Company, Chicago, Ill.
506,029. Production of Lime. Jacob F. Barrow, Parole. Assignor to William C. Ditman, Baltimore, Md.
506,031, 506,032. Manufacture of Blasting Compounds. Jonas E. Blomen, Landing, N. J. Assignor, by mesne assignments, to the Unique Powder Company, New York, N. Y.
506,035. Ore Concentrator. Fred D. Darragh and Fred G. King, Denver, Colo.
506,044. Apparatus for Coating Sheet Metal. George W. Jaques, New York, N. Y.
506,060. Feed Mechanism for Rolling Mills. James M. Murphy, Pittsburg, Pa.
506,077, 506,078. Apparatus for the Manufacture of Gas. James R. Rose, Allegheny, Assignor of one-half to J. Thorne Potts, Philadelphia, Pa.
506,081. Automatic Dumping Bucket. Albert N. Simmerly, Cleveland, O.
506,108. Construction of Flues. William J. Fryer, New York, N. Y.
506,128. Smoke Consuming Furnace. John Milton, Alexandria, Va., Assignor of three-fifths to Albert F. Kingsley, Washington, D. C.
506,129. Means for Regulating the Blast in Ore Roasting Furnaces. Richard Pearce, Denver, Colo.
506,136. Blasting Apparatus. James Sawyer, Duquoin, Ill.
506,151. Apparatus for Preparing Peat for Fuel. Osmond G. Blunden, London, England.
506,165. Water Tube Boiler. Louis M. G. Delaunay-Belleville, St. Denis, France.
506,168. Process of and Apparatus for the Manufacture of Gas. Edwin R. Ellsworth, Brooklyn, N. Y. Assignor to Clarence O. Douden, same place.

PERSONALS.

The department of geology, at Colorado College, has been placed in charge of Mr. Joseph K. Surls.

J. E. Gaylord, manager of the Parrot company's works, in Butte, Mont., is now on a visit to Chicago and the East.

Mr. W. W. Russell, of Port Arthur, Ont., has been making an examination of some of the mines on the Mesaba iron range.

Mr. A. F. Schneider has resigned his position with the St. Louis Smelting and Refining Company and is now superintendent of the works of the Great National Mexican Smelting Company, at Monterey, Mex.

Chas. W. Goodale, superintendent of the Boston & Colorado Company's properties, in Butte, Mont., will hereafter fill the position of consulting engineer for the Drumlummon Mining Company, as well as his present position.

Mr. I. Harris Bolles, mining engineer of New York, is at present in Chicago, at the Fair. He was the president of the Excelsior Water and Mining Company, of California, and is now interested in the Mollie Gibson mine, in Colorado.

Prof. W. Hartmann, of the Royal Polytechnic University, in Berlin; Germany C. Fehlert, an engineer, also of Berlin; and Theodore Voss, an engineer, of Magdeburg, Germany, were recently in Tower, Minn., and examined several mines in that vicinity.

R. N. Dickman, of Dickman & Mackenzie, chemists, of Chicago and Cleveland, was in Duluth last week, where he examined some iron properties on the Mesaba Range. From Duluth he goes to Montana, where he will spend a few weeks examining some gold properties.

Mr. Lewis K. Davis, M. Am. Soc. M. E., M. Am. Inst. M. E., and until recently manager Engineering Department of the National Lead Company, of New York City, has resigned and opened an office as a consulting and constructing engineer, at Room 206, 1 Broadway, New York.

Gen. Peter C. Doyle has been appointed collector of customs for the Buffalo district by President Cleveland. General Doyle has been connected with the coal and traffic departments of the Lehigh Valley, at Buffalo, for some years, lately as general northern freight and passenger agent.

Mr. O. H. Hahn, the well known mining engineer, who recently returned from South Africa, was last week in New York on his way to Germany, where he proposes to remain for a time. His address for the present is Apolda, Germany. In South Africa Mr. Hahn did some excellent work as general manager of the Transvaal Silver Mines, Limited.

Mr. Ernest Stutz, of Creugeldanz, Germany, a mining engineer in the royal Prussian service, is at Butte. Mr. Stutz has been commissioned by the Prussian government to investigate the mineral resources of the United States. His mission takes him to the Pacific coast and then East by the southern route. He will spend considerable time in Michigan, Pennsylvania and Ohio, and will make a detailed report to his government of all that he has seen in this country.

OBITUARY.

William H. Guion, one of the best known merchants and shipowners of New York, died in that city, of paralysis, October 8th, aged 75 years.

Josiah Jackson, professor of higher mathematics at the Pennsylvania State College, died suddenly at Chester, Pa., October 11th, aged 64 years.

Valentine W. Weaver, of Macungie, Pa., one of the best known iron men in that State, died suddenly in Catasauqua, Pa., October 11th, aged 67 years.

Anson H. Landon, of the iron firm of Landon & Clark, well known in the iron business throughout the country, died at his home, at Bridgeport, Conn., October 8th. He was 58 years old.

John McKesson, one of the oldest and best known men in the chemical and drug trade in New York died October 11th, aged 86 years. For many years he was head of the firm of McKeesson & Robbins, but retired from active work some years ago.

David Lowber Smith, assistant deputy controller of New York City, died here on the 10th inst. He was born in this city, and was about 47 years old. He was graduated from the New York Free Academy, now the College of the City of New York, and became by profession a civil engineer. He was appointed an engineer in the Department of Public Works, and in 1883 he was made water purveyor. In November, 1884, Mr. Smith became deputy commissioner of public works.

Benjamin Whitworth, who died September 24th in Hampstead, England, aged 77 years, was largely interested in the coal and iron industries, and was one of the originators and first directors of the following limited companies: Bolckow, Vaughan & Co.; Tredegar Coal and Iron Company; John Brown & Co.; Cortonwood Colliery Company; Staveley Coal and Iron Company; and Sheepbridge Coal and Iron Company. He was for many years a director of the Metropolitan Railway Company, the Manchester Carriage and Tramways Company, and numerous other undertakings.

SOCIETIES AND TECHNICAL SCHOOLS.

American Society of Civil Engineers.—At the regular meeting on Wednesday evening, October 4th, a paper on "The Storage and Pondage of Water" was presented by Mr. J. P. Frizell.

Engineers' Club of St. Louis.—At the regular meeting, October 4th, Mr. E. A. Hermann read the paper of the evening on "Bracing a Tunnel in Soft Material," which was generally discussed by members present.

American Chemical Society.—At the regular meeting of the New York section, October 6th, the following officers were elected for the ensuing year: President, Prof. Peter I. Austen; secretary and treasurer, Prof. Morris Loeb; executive committee, Prof. A. C. Hale, Prof. William McMurtrie, Prof. A. A. Brenneman, and the president and secretary. Prof. A. H. Sabin, the retiring president, delivered a lecture on linseed oil.

American Bankers' Association.—The nineteenth annual convention will be held at Chicago October 18th and 19th. The convention will be in the Art Institute, on the Lake Front. The following gentlemen will address the convention: Hon. James H. Eckels, comptroller of the currency, Mr. George S. Coe, Hon. Joseph C. Hendrix, Mr. Horace White, New York; Mr. Allen R. Foote, Washington; Mr. George A. Butler, New Haven, Conn.; Mr. George E. Leighton, St. Louis; Mr. W. C. Cornwell, Buffalo, N. Y.; Mr. E. H. Thayer, Clifton, Ia. A paper prepared by the Hon. E. O. Leach, New York, will be read to the convention: "The Silver Question as Related to the Appreciation of Gold." Papers will be presented to the convention by Prof. Sidney Sherwood, Johns Hopkins University; Mr. Joseph F. Johnston, Birmingham, Ala.; Mr. Frank C. Dillard, Sherman, Tex.; E. E. Lindemuth, Clearfield, Pa., and others.

Engineers' Society of Western Pennsylvania.—The regular meeting was held in Pittsburg, September 19th. The library committee reported the addition of 67 volumes since its last report. The papers read at the June meeting on "Gas and Gas Producers," by Walter E. Koch, and on "The Effect of Suddenly Applied Loads Upon the Tensile Strength and Other Properties of Iron and Steel," were fully discussed. Mr. Charles Hyde gave an interesting discussion on "Water Tube Safety Boilers," illustrating his remarks by a working model of the Hyde boiler.

On September 22d and 23d the visiting French engineers were entertained by the Society, and visited the coal mines of the Pittsburg Consolidated Coal Company, Homestead, McKeesport, Davis Island dam and many of the largest and most important steel works, electric plants, inclines and street car power-houses were also visited. On the evening of the 23d the members of the committees of the Engineers' Society and of the manufactures of the city were the guests of the French engineers at a dinner at the Monongahela House.

At a meeting of the Chemical Section, September 26th, the subject of "Standard Methods for Sampling and Analysis of Iron and Steel" was discussed. Mr. Jas. O. Handy read a paper on "The Effect of Arsenic on Phosphorus Determination in Iron and Steel."

Nova Scotia Mining Society.—The regular quarterly meeting was held in Halifax, September 28th. The morning session was devoted to routine business, and a large delegation of members waited on Premier Fielding with reference to the introduction of mining legislation. Mr. Alexander Dick was unanimously elected a member. At the afternoon session papers were read and discussed, the first being by Charles E. Fergie, manager Intercolonial Coal Mining Company, on "Effect of a Lightning Discharge at the Scott Pit." Capt. W. R. Thomas' paper, "Notes on Practical Mining Applicable to Some Gold Districts in Nova Scotia," was well received, and evoked considerable discussion, throwing much needed light on the persistency in depth of gold pay streaks in Nova Scotia. Mr. Hayward, the president, and others, discussed the paper, and Mr. Hardman followed with his paper on "Government Aid to the Mining Industry—a Suggestion," in which he outlined the different proposals that had been made for government aid in the sinking of a shaft, the reduction of royalty and the bonus, and then very clearly showed that the preparation of plans from surveys and from information now available of the working in each district would be invaluable to miners as guides in workings and to capitalists intending to invest. Mr. B. T. A. Bell arrived from Ottawa as the representative of the Quebec Mining Association, and was accompanied by S. P. Fronchol, of Ottawa, and one or two other members of the visiting society. A dinner at the Halifax in the evening was a fitting conclusion to the day's programme. On Friday, in spite of the bad weather, an excursion to Montagu and Waverley came off, and the works of the Nova Scotia gold mines, the Symon-Kaye syndicate, the West Waverley company and the Laidlaw Hill tunnel were inspected.

INDUSTRIAL NOTES.

The Phoenix Iron Company, Phoenixville, Pa., started up its puddle mill October 10th, and is preparing to start up other parts of the works.

The puddling mill of the Bethlehem Iron Company resumed work October 11th and the old rail mill October 12th; the steel mill will go into operation on the 16th.

The blooming mill department of the Spang, Chalfont & Co.'s Steel Works, have gone on double turn. This mill has been shut down for a long time, and by its starting employment is given to about 100 men.

The gigantic hydraulic forging press of the Bethlehem Iron Company, at South Bethlehem, Pa., was started on the 7th inst. The press has been erected in an extension to the building of the famous 125-tons steam hammer.

The puddling department of the Clinton Iron and Steel Company, Pittsburg, Pa., resumed work October 10th, after an idleness of several months. About 40 colored puddlers were given employment. They will receive $4.25 a ton.

The Apollo Iron and Steel Company, Pittsburg, Pa., resumed work on the 9th inst., with non-union men. Two sheet mills and the hammer department were started. As business requires, other departments will be put in operation.

The New Home Sewing Machine Company, Orange, Mass., has placed the contract with the Berlin Iron Bridge Company, East Berlin, Conn., for a new foundry and tumbling-room. The building will be entirely of iron, 45 ft. in width and 120 ft. in length.

At the annual meeting of the Pennsylvania Steel Company, in Philadelphia, October 4th, the following directors were elected: Luther S. Bent, Edmund Smith, H. H. Houston, William M. Spackman, William D. Winsor, Wayne MacVeagh and Effingham B. Morris.

Mackintosh, Hemphill & Co., Pittsburg, are taking advantage of slackness of work in their foundry to make some decided improvements in their equipment. Electric cranes are being substituted for the old jib cranes, and other improvements may be made, the work to require two or three months.

Advices from Pittsburg, Pa., say that the reduction of 10% in the sheet iron scale, wanted by some of the manufacturers, will likely be granted. In June last the manufacturers signed the scale. Few of the mills resumed until two months later. Many of them are now running, but will shut down unless a reduction is given them.

The Apollo Iron and Steel Company, of Apollo, Pa., one of the largest concerns in the country, resumed operations in nearly all departments October 9th, with non-union employees. The Amalgamated Association having declined to reopen the scale conference, it is thought that several other large concerns will operate on a non-union basis.

The various mills of the Consolidated Steel and Wire Company's plant, at Pittsburg, Pa., W. Rankin, have resumed one by one, since the plant burned down several months ago. The galvanizing department and the nail mill, which has been on single, have gone on, employing 150 men. The plant, when full, employs 800 men, 600 of whom are now at work.

In the Ohio Valley the men anticipate a long shutdown and have asked the Amalgamated officials to reconvene the conference committee for the purpose of offering the manufacturers a cut of 10% in the scale. Official notice from the Wheeling lodges has been received at the Amalgamated general office, and a circular has been sent to all the sub-lodges in the association to vote on the proposition.

The plate mill of the Ellis & Lessig Iron and Steel Company, Pottstown, Pa., resumed operations October 10th, the employees agreeing, after a conference, to accept the reduction until the return of better times. They are to work five days a week and three weeks a month. The puddlers have not yet decided to accept the proposed reduction in their wages, which, they claim, would lower them to $2.50 a ton, but it is believed that they will do so.

MACHINERY AND SUPPLIES WANTED.

If any one wanting machinery or supplies of any kind will notify the "Engineering and Mining Journal" of what he needs he will be put in communication with the best manufacturers of the same.

We also offer our services to foreign correspondents who desire to purchase American goods, and shall be pleased to furnish them information concerning goods of any kind, and forward them catalogues and discounts of manufacturers in each line.

All these services are rendered gratuitously in the interest of our subscribers and advertisers; the proprietors of the "Engineering and Mining Journal" are not brokers or exporters, nor have they any pecuniary interest in buying or selling goods of any kind.

GENERAL MINING NEWS.

The result of oil explorations in September, as given by Stowell's report, shows for the New York, Pennsylvania and Ohio field a total of 158 new wells, with a total production of 6,400 barrels. There were 299 wells going down at the close of the month. As compared with August the number of new wells was greater by 13, but the average product was only about two-thirds of that of the August wells.

In the Buckeye district, in Ohio, 131 wells were completed, with a total yield of 6,752 barrels; 150 new wells were in progress at the end of the month.

In the Southeastern Ohio field 21 new wells, with an output of 240 barrels, were completed; 25 new wells were being bored.

In the Indiana field 27 new wells, with a total product of 2,055 barrels daily, are reported. On October 1st there were 36 new wells under the drill.

ALABAMA.

Cleburne County.

(From our Traveling Correspondent.)

Pinzon.—The hydraulic plant and ground known as the Pinzon property, at Arbacoochee, was leased recently to parties from Pratt City, who propose working the placer ground by hydraulic mining, and prospecting for the quartz ledge which has furnished the placer gold found on this property in the past. This, together with the Denson property, consisting of the entire adjoining section on the west, produced nearly all the gold credited to Alabama 50 years ago, and up to the California excitement in '49. Since then the Arbacoochee placer mines have been comparatively abandoned except that the hydraulic plant was operated for a short time a few years since. Recent prospecting has proved that the placer ground where water can be obtained will pay from $1 to $3 a day to the man, and several of the residents have been sluicing during the past summer on payment of royalty of 10% of the clean-up, but scarcity of water has proved a great drawback. Hydraulicking is possible by the use of heavy pumping machinery which the new lessees propose putting in.

Sutherland District.—This is situated about 15 miles southeast from Edwardesville, the county seat, and was first discovered last spring by a prospector who made shallow openings at several points on two parallel ledges of gold-bearing ore, which is of the nature of a mineralized sandrock carrying a large percentage of garnets both oxidized and, as in the Lucky Joe, unoxidized, with seams of white decomposed quartz and other seams of oxidized iron; the last named carrying the coarsest gold and panning quite richly. In this district the most promising properties are the Sutherland, Middlebrook, Bennifield and Ballinger; besides these are others on which discoveries have been made and prospected, but not sufficiently to determine the value or extent of the ore bodies.

ALASKA.

Alaska-Treadwell Gold Mining Company.—The statement for the three months ending August 31st is as follows: Receipts: Gold bullion sold, $200,431; interest received, $72, equal $200,504. Disbursements: Mining, 59,290 tons of ore (including deadwork), $34,498; milling same and saving 1,135 tons concentrates, $21,291; chlorination, treating 1,098 tons concentrates, $8,965; general expenses of all kinds, $3,381; bullion charges, freight, etc., $2,924, equal $71,068. Profit available for dividends, $129,435. The total cost per ton during above period has been $1.20.

(Reported for the "Engineering and Mining Journal.")

The end of the working season in Alaska is close at hand and a fair estimate can be made of the progress achieved this summer.

On Douglass Island the Alaska-Treadwell continues its regular output, and the new 60-stamp mill on the Mexican, belonging to the same company, is rapidly nearing completion.

On the mainland, the Fuller 1st, owned and operated by Arch'd W. Campbell, has been keeping a five-stamp mill busy all the season, with satisfactory results.

Charles Wells has just closed down his placer properties for the season, and has made a mill run of 100 tons of quartz (in addition to returns from the placers) running about $45 per ton.

Willis Thorp, who has had the Coulter property leased, is still running it, and, it is claimed, doing well.

The Juneau Mining and Milling Company has been steadily at work and their mine looks well.

The Nowell Gold Mining Company is still running its placers in Silver Bow Basin. The amount taken out cannot, of course, be told until the final clean-up, but the monthly clean-ups have maintained a good average. They are running two giants night and day, and have just completed an electric light plant to facilitate night work. This plant has been put in by C. E. Dutcher for the Edison Electric Company. The Nowell company has also done a large amount of exploration work on the Ground Hog claim, and is now getting in boarding-houses, blacksmith shop and compressor plant, at the mouth of the tunnel, with a view to continuing this work during the winter.

The Bleichert tramway is nearly completed, and they may still be able to run their mill for a short time this fall.

At Berner's Bay, the Berner's Bay Mining and Milling Company has built 2½ miles of narrow gauge railway from the beach to the mill site, and has the mill site graded, timber framed and on the ground. They have run about 300 ft. of tunnel on the Comet this season on three different levels, and have completed boarding-houses, etc., for the miners, that they may continue through the winter. The tramway, 6,000 ft. in length, is in process of construction and will be ready when the mill is.

There are all kinds of prospectors' stories afloat with the usual amount of "fairy tale" attachments, but no remarkable discoveries have been made. The miners are just beginning to come out of the Yukon country, and the air is full of big stories, but so far as can be positively learned the output this year is comparatively small, the season having been very short.

ARIZONA.

Yavapai County.

Seven Stars Gold Mining Company.—A levy of attachment was filed for record September 27th against this mining company by the Bashford-Burmeister company for $5,595.

Yuma County.

Golden Cross Mining Company.—This company's mill, at Gold Rock, has started up. The ore is said to run over $15 per ton, says the Yuma "Times."

Harqua Hala Gold Mining Company.—Ten more stamps are to be added to the Bonanza mill, at Harqua Hala.

CALIFORNIA.

Amador County.

Alma.—At this property two shifts are at work upon the shaft which is now down about 50 ft. It is of three compartments and is well timbered. The foundation piers of the main building have been laid and the sills for a building 28×90 are in position. This building is to contain the engine, the compressor, if a compressor is necessary, and the gallows frame. The management is still running with a windlass, but soon expects to have the machinery on the ground, which has already been purchased. The croppings of the ledge extends and can be traced on the surface of the Mattley field for 1,100 ft., and in many places shows 40 ft. in width, says the "Amador Ledger."

Bay State.—Work at this mine is progressing favorably. The management is running for the north ore shute and has drafted 245 ft. with good indications of the ledge coming in, says the Jackson "Ledger." Retimbering the south drift is also in progress. The hydraulic pump holds the water easily.

Jackson Gold Fields.—According to the Jackson "Amador Ledger," Mr. Jas. E. Dye, representative of this company, has commenced operations in the Amador Queen No. 1 tunnel for the purpose of cleaning the shaft and prospecting the ledge.

Wildman.—This mine is preparing to sink another 100 ft. The owners are now arranging to place a pump to keep the water out of the new level, and in consequence have had to shut down their mill for a few days.

Madera County.

(From our Special Correspondent.)

Waterloo Mining Company.—This company proposed selling 35,000 shares of stock on account of delinquent assessments, but J. D. Beam, of this county, through his attorneys, obtained an injunction restraining the company from taking any such action. The plaintiff complains that an attempt is being made to freeze him out, and that the entire stock has been bonded to S. S. Badger, giving him the option to purchase any time before November 3d the stock for $75,000.

Nevada County.

Morning Star.—The new mill on this mine, at Iowa Hill, is completed and has been started up, says the Grass Valley "Tidings." The mill is run by a 3-ft. water wheel.

(From our Special Correspondent.)

Consolidated Wyoming Mining Company, Nevada City.—The directors have levied an assessment of five cents per share.

Stiles.—This ledge, owned by W. A. Rich & Son, has been purchased by Hicks & Co., of San Francisco, the purchase price being $100,000.

San Francisco County.

(From our Special Correspondent.)

French Gulch Mining Company.—This company has filed incorporation papers, the following being named as directors: M. D. Fairchild, J. W. Condant, W. H. Fowler, G. W. Osborn and G. W. Osborn, Jr.

Sierra County.

(From our Special Correspondent.)

Mount Maria Mining Company, American Hill.—The machinery for the new 20-stamp mill is now on the ground. The stamps weigh 1,200 lbs. each; the shoes are 9½ in. in diameter and 8 in. high. There is a 5×12 grizzly, 10×16 crusher, 4 ore bin grates, 4 Challenge ore feeders, 20 stamps, 1 traveling crab, 1 amalgam barrel, 1 waste tank, 1 gold retort, a 16-ft. water wheel, 1 water heater, 4 Woodbury concentrators and 242 sq. ft. copper plate with 2-oz. plating.

COLORADO.

The owners of the Leadville smelters are making an effort to resume, but it is claimed that the same wages were being paid, at the time the smelters shut down, as when flour was $4 a sack and other articles of food and clothing as high in proportion. This has kept the rates so high in Leadville that great quantities of ore are shipped to Kansas City, Pueblo and Denver, says the Denver "Republican." It costs $6.85 a ton to smelt ore in Leadville, according to the figures of William R. Harp, while other smelters handle a ton of ore at a cost of $5.10, a difference of $1.75. The cost of living is 10% higher in Leadville than in Denver. The smelter owners are willing to allow this extra 10% to the men and then can cut their present scale of wages 20% when the smelters will be able to open. Mr. Harp has prepared a statement of the wages paid in Denver and Leadville. Thus furnace men receive $3 per day in Denver and $4 in Leadville; feeders, $2.50 and $4 respectively; weighers, $2.50 and $3.50; roasters, $2.75 and $3.75; wheelers, $2.50 and $3; engineers, $3.25 and $4; firemen, $2.50 and $3; laborers, $1.75 and $2. The prices paid for labor are thus from 20 to 60%—on an average over 30%—higher at Leadville than at Denver. The Leadville smelters employ 1,500 men. The operation of the smelters, except for labor, costs about the same as in Denver. There are no freight charges, the ore being dumped from the mines into the smelter. But all smelter supplies, such as charcoal, coke, lime rock, etc., are higher because they have to be hauled in by the railroads.

Routt County.

Elkhead Gold Placer Company.—This company has filed an amendment to its articles of incorporation, increasing its capital stock from $500,000 to $1,000,000. According to the Denver "Mining Record" the company owns 1,400 acres of placer land in Routt County, and the directors are arranging to build a reservoir and pipe line, and other improvements to the plant. They have just made a clean-up of their summer work and the returns, it is said, give over 23 cents per yard. Work is to be continued until about December 1st.

Clear Creek County.

Silver Plume District.—Advices from Silver Plume state that the mines are again assuming their old activity. A number of new leases have recently been started. The ore shipments, although light last week, have shown a decided increase for September over those of August. The Pay Rock and Seven-Thirty both shipped a little ore to Georgetown last week. The cable of the Pay Rock tramway broke at the upper station recently. Considerable water was recently encountered in the workings of the Stevens mine below the tunnel level, which necessitated a suspension of work in that part of the mine, as the water gained rapidly, although hoisting with a whim was carried on day and night. Several hundred feet of drifts were filled, and the water is now rising in the shaft. Mr. Griffin is considering the erection of pumping machinery for handling the water and allowing work to be resumed. Several parties are doing development work on prospects on Kelso Mountain, in the vicinity of the Atlantic-Pacific tunnel.

Yankee Hill District.—Late reports from Yankee Hill say that as the stamp mills are nearing completion activity in mining is on the increase in that camp. In the course of two or three weeks two mills will be in operation. From a number of actual mill-runs of one to two-ton lots, made at Black Hawk and Idaho Springs, taken from different localities of the camp, it has been proved that the veins already discovered and developed cover an area of more than two and one-half miles square. Most of these mill-runs show the ore to be worth nearly an ounce of gold per ton. Preparations are being made by many of the mines to work all winter. Manager Smith expects to have the Whale running with an increased force of men shortly. An assay just made from a 2-ft. wide streak of ore that they have heretofore considered of little or no value is said to have given a return of $40 per ton.

Custer County.

New Bassick Mining Company.—At the annual meeting of this company the following directors were elected: Warner Miller, George P. Folts, C. R. Snell, of New York; N. M. Tabor, of Denver; and Henry F. Selleck, of Denver.

Dolores County.

Enterprise Mining Company.—The miners working on the Enterprise mine have returned to work and will wait until October 20th for September pay. This action was brought about on account of a notice which Superintendent Kirby, October 3d, posted in the office notifying the men that all those who wanted their pay at once could get the same, but they need not expect to go to work at the mine again. Men who wanted to go to work were notified that the mine would start up October 5th, and that they would be paid in full when regular pay-day came.

Eagle County.

Belden.—This mine, Red Cliff, the largest lead producer of Battle Mountain, has continued to operate with a force of from 75 to 100 men night and day, extracting hundreds of tons of lead ore.

St. Joe.—On this channel the ore channel increases with development and a cross-cut from the right-hand drift has disclosed a 5-ft. body of ore. Machinery has been placed and everything is in shape for extensive operations.

El Paso County.

Bull Mountain.—An important deal was made October 3d in the sale of five undeveloped claims on Bull Mountain, joining the Buena Vista, and north of the Victor, by the owners, Pabst Brothers, Patrick Moore, Charles Allen and Joe Finlay to F. M. Combs, of Aspen, for $50,000. A portion of the money was paid down and the balance will be paid in three, six and nine months. The claims are well located and are said to show up well for the little development work done.

Little Joan Mining Company.—This company has made a bond and lease on the Apex lode to J. J. Hagerman for two years for $1,500 and royalties as follows: 10% on all ores less than $25; 15% on less than $50; 25% on ores less than $100, and 33⅓% on ore over $100. The lease is for two years and the amount named as purchase price is $60,000. The lessee reserves the right to transfer his right, title and interest to the Isabella Gold Mining Company if he sees fit.

Princess Mining Company.—All accounts from the Mattie D. mine, of this company, are favorable to that property, says the Colorado Springs "Gazette." The pay streak continues to hold out in good shape. The board of directors has held a meeting and decided to push work steadily ahead. The last car is said to have run between $7,000 and $8,000, and the ore runs now from $380 to $400 per ton.

Work Mining Company.—The stope recently started above the lower drift shows a solid streak of high-grade ore 20 in. wide. The vein disclosed is said to be from 3½ to 6 ft. wide, and shows a streak of pay ore throughout its length. No drifting has been done south from the winze, although there is a good streak of rich ore on the hanging wall. A shipment of mill ore has been made to the Rosebud mill for the purpose of comparing the relative merits of different concentrating machines on this quality of ore. The mine is producing steadily.

Zenobia.—Col. E. F. Brown is quoted by the Colorado Springs "Gazette" as saying that the output of the Zenobia averages from 100 to 150 tons of smelting ore per week, together with 200 tons of mill material. The latter is treated in the camp and yields from $6 to $10 per ton in gold. The smelting product is shipped to Denver, most of it to the Grant smelter, and ranges in value from $125 to $150 in gold per ton.

Following are the latest items of mining news from Cripple Creek:

Appie Allen.—This claim, adjoining the Kentucky Bill, of the Elkton group, on Raven Hill, was sold October 5th to H. P. Barbour and associates, of Duluth, Minn., for $15,000.

Bonanza.—This mine, on the east side of Squaw Mountain, has opened a 3½-ft. vein which averages well in gold.

Eclipse No. 1.—This was leased last week to Eichelberger & Ledgewood, and has 17 ft. of vein exposed in a cross-cut. The size of the vein has not yet been determined.

Jay Bird.—A large body of milling ore has just been opened in this mine, situated on the west side of Bull Hill, between the War Eagle and Amanda.

New Albany.—An important discovery of ore was made last week at Cripple Creek, on the New Albany, situated on the west side of Tenderfoot Hill. The vein is 8 ft. wide. This find is in a portion of the district which has not heretofore produced anything of value.

Pharmacist.—This mine has broken into the Zenobia vein, for which they have been crosscutting for some months, and up to October 6th had cut through 3½ ft. of good ore, with no sign of a second wall.

Pike's Peak No. 2.—Rich ore is reported to have been struck in this mine, a vein parallel with and about 400 ft. west of its famous namesake.

Rosebud Milling Company.—Some of the members of this company have bonded the Wichita, situated between Ironclad and Bull Hills, from the Cripple Creek Syndicate Mining Company, for a large sum, and will take possession and begin operations on the mine next week.

Sangre de Christo.—McLeod & Vanderhoof have bonded this mine, on the south side of Squaw Mountain, to Judge Abbott, for $10,000, one year's time.

Hinsdale County.

Capitol City.—This mine will also resume, with a force of from 75 to 100 men.

Golden Fleece.—This mine is working a force of 27 men, and the owners expect to double the numbers shortly.

Ute & Ulay Mines, Limited.—According to the Durango "Southwest," these mines, at Lake City, are making preparations to resume operations, and will give employment to 250 men. Orders were received last week to pump the mines dry.

Lake County.

Fannie Rawlins Mining Company.—A deed of trust on the Fannie Rawlins mine in the principal sum of $10,000 was filed October 3d with the clerk and recorder between the Fannie Rawlins Mining Company and A. Sutton, of El Paso County.

Hector.—Jesse Cohn has sold to L. Cohn a one-third interest in the Hector lode, a two-fifths interest in the Grace Greenwood lode, a one-third interest in the Iron Safe lode, a one-third interest in the Makeshift lode and a two-fifths interest in the Beecher lode, all of Lake County.

(From our Special Correspondent.)

Iroquois.—These properties, including the St. Mary's, Barrett and Chapman leases, are now in operation and shipments average 50 tons daily of good iron ore.

Lincoln Mine.—A gold property is being worked by P. H. Goris ,who has the Huntington mill for the treatment of the ore in full operation. The tunnel is in 200 ft. with walls of birdseye porphyry, the pay streak being about 8 in. wide. This streak is a decomposed matter carrying fine gold, and, as far as tested, gives about an ounce to the ton. The vein grows richer as development work progresses.

Maid & Henriette.—The lessees who took hold of this property on the co-operative plan, to work a portion of the mine, are now shipping 10 tons daily of high-grade sulphides.

Niles-Augusta.—Among the large properties recently to resume operations is this. These people have a fair grade carbonate ore and have resumed shipments this week at the rate of 50 tons daily. This amount will very likely be increased.

Penrose-Grey Eagle Combination.—From the Penrose and Orion shafts 10 tons of chlorides are being shipped daily to the Omaha & Grant smelter, and 75 tons daily of good iron ore are being shipped from the Grey Eagle shaft to Pueblo smelters.

Wolftone.—Last week 35 men were put to work on this property, and an increased force is promised. They are now averaging 50 tons of iron sulphides daily.

Pitkin County.

Aspen District.—Late advices from Aspen are to the effect that the miners and mine managers are farther from a settlement of their differences than at any time since the attempt was made to get together on a new scale. At a mass meeting held October 4th the miners submitted the old proposition of $2.50 and eight hours. The managers offered $2.50 and ten hours, or $2 and eight hours. So the matter stands. After the mass meeting the Miners' Union met in secret session and initiated many new members. Union leaders claim they can prevent the men from going to work under the scale offered, and they say it will be their own terms or none.

Saguache County.

Del Monte Mining Company.—A directors' meeting of the Del Monte company was held in Colorado Springs October 2d. The board decided to begin work again at once where it left off a few months since. The mine has been kept in good condition since the shutdown. The superintendent has gone to Creede to begin operations.

San Miguel County.

Shipments of ore and concentrates from Telluride for the week ending September 29th aggregated 561 tons, of which 528 tons were from the Smuggler-Union, and 33 tons from the Hector. Since January 1st total shipments amount to 15,277 tons.

Cimarron.—At this mine some important development work is under way. Some time since the owners of the Cimarron purchased a part of the Bradley claim, adjoining the Cimarron, for dumping ground, and on this a tunnel is being driven, to connect with the main tunnel, when the proper distance is reached, by an upraise. The tramway will be dispensed with when the connection is made, the ore then being sent down the upraise, thence on cars through the tunnel to the mill. The Cimarron ore is concentrated, about 30 tons into one. The concentrates average a fraction over 20 oz. gold and between 40 and 50 in silver per ton. Part of the ore is free milling, but the major portion is refractory, carrying no little lead. Over 100 men are employed in the mine and mill. The management has liquidated past indebtedness to employees, it is said.

Sheridan & Mendota Consolidated Mining Company.—Advices from Telluride are to the effect that the Sheridan 40-stamp mill is now treating from 75 to 100 tons of ore per day from the Union dump. A contract has been made for hauling the ore from the Union dump to the head of the tramway, a distance of one mile. The Union dump ore ranges in value from $12 and upward in gold and silver. The milling of the Union dump has increased the payroll of Marshall Basin about 65 men.

Smuggler-Union Mining Company.—This company is shipping from six to eight cars of high-grade ore daily, which, together with the Union dump, has necessitated the addition of many buckets to the tramway, increasing its capacity to 150 tons per day. The Union shaft is being sunk 131 ft. to intersect the Bullion tunnel, and when this connection is made the Union ore, when work on the mine is resumed, will be sent down the shaft, thence through the tunnel to within a few feet of the head of the tramway. The Bullion tunnel, commenced over two years ago, is being slowly and steadily driven through the mountain and within 236 ft. more will be vertically below the Smuggler shaft, which will then be sunk 136 ft. to connect with it, when the Smuggler ore, same as the Union, will be worked through the Bullion tunnel with a similar reduction of expense in handling the same.

FLORIDA.

De Soto County.

De Soto Phosphate Company.—This company is now actively at work at Zollo, mining on the river bank.

Polk County.

Belle Phosphate Company.—This company's plant, on Place River, near Fort Meade, will soon be in full operation. It is a land pebble deposit.

GEORGIA.

Lumpkin County.

Barlow.—This mine has shut down for the present, as it can no longer be worked at a profit by hydraulicking.

Lockhart.—This mine, says the "Nugget," is running on full time and is yielding good returns. The 12-ft. vein is milling $7 per ton free gold and the tailings assay $28 per ton. The ore is very hard, showing heavy sulphurets, with traces of galena and silver. A force is kept at work on the vein night and day.

Nowell.—A half interest has been sold to Atlanta parties for $7,500.

Wells Mine.—This mine, at Auraria, is doing well, according to the Dahlonega "Nugget." The shaft is to be sunk to a depth of 200 ft.

IDAHO.

Boise County.

Iroquois Mine.—The owners are preparing to carry on development throughout the winter.

Boulder Mine.—The lower tunnel is now in over 250 ft., but some 50 ft. more must be driven to cut the ore.

Coeur d'Alenes.

Canyon Creek District.—The latest information from Wallace is to the effect that the outlook is not encouraging for an immediate resumption of work on Canyon Creek. The union there has voted against accepting the schedule of the mine owners—$3.50 for miners and $3 for starters and carmen. Delegates from the Butte union met with the miners at Gem, and on a secret ballot the result was a vote against acceptance of the terms. The mineowners will put on men at the rates offered as fast as they appear for work.

ILLINOIS.

Shelby County.

Oil Well.—A press dispatch says that oil has been found on the Baldwin farm, near Windsor, at a depth of 90 ft. The oil was thrown in a 2-in. stream to a height of 50 ft. above the surface.

Vermilion County.

Kelly Coal Mine.—At this mine, near Danville, on October 7th the roof caved in, killing one man instantly, injuring another fatally and a third severely.

INDIANA.

Greene County.

Belltown.—At this place, near Linton, a vein of coal of very good quality has been struck at a depth of 67 ft. It is said to be 6 ft. thick.

IOWA.

Des Moines County.

Keystone Coal Company.—This company has been organized at Des Moines, with $15,000 capital stock. The incorporators are John McKay, John McKay, Jr., and Edward McKay.

KENTUCKY.

Laurel County.

Lily Coal Company.—The bondholders who bought this coal mine at the foreclosure sale in August, have leased the property to Mr. Craft, one of their number. He is now running the mine, with Mr. T. J. Tapp, late of Louisville, as superintendent.

MARYLAND.

Cecil County.

Maryland Clay Company.—This company, which recently leased the Hanna and Hunt properties, near Northeast, has found a valuable deposit of kaolin.

MICHIGAN.

Copper.

Calumet & Hecla Mining Company.—Drifting on the Osceola amygdaloid, in the Calumet & Hecla mine, still continues, and the lode is looking well. Recently a rich lode was again struck in the bottom of No. 12 shaft, South Hecla. It has been opened to a width of something like 4 ft., and the character and quality of the rock, it is said, surpasses anything discovered in that quarter since the main copper course passed north of the shaft.

Iron—Menominee Range.

Aragon.—Shipments have been suspended temporarily, on account of high freight rates, it is said.

Escanaba River Iron and Land Company.—At a recent meeting held in Negaunee, the stockholders voted to issue 7% bonds on the property to pay off the floating debt.

Mansfield Iron Mine.—The fatal accident at this mine, which was reported last week, is very severely commented upon by local papers. It appears that the mine has been worked nearly four years and has shipped about 60,000 tons of Bessemer ore. The vein was about 16 ft. wide and dipped rapidly so that the workings, begun on the banks of the Michigamme River, have been for two years past carried on directly under the stream. There has been much trouble lately from water. The nature of the ground was such that the necessary protection could have been given, but it is charged that recently the work has been carried on recklessly, and that the pillars of ore in the upper levels have been robbed without regard to consequences. A full investigation is to be made by the mine inspector for the district.

Penn Iron Company.—But little change has been made in the force, although shipments are nearly over for the season. Nearly 270,000 tons of ore have been sent out.

MINNESOTA.

Duluth County.

(From our Special Correspondent.)

Iron ore shipments from the Vermilion range were for last week 19,223 tons, the lowest total of the year. Of this the Minnesota sent 7,186; the Chandler, 10,164, and the Zenith, 1,883. Mesaba shipments were about 30,000 tons, all from the Mountain Iron, Missabe, Oliver, Biwabik and Commodore. The Franklin, which has resumed mining, has as yet shipped nothing. Total shipments from all the Vermilion and Mesaba mines for the season are as follows: Minnesota, 318,000 tons; Chandler, 371,000; Zenith, 13,000; Cincinnati, 10,000; Canton, 24,500; Franklin, 24,000; Hale, 2,200; Duluth, 38,000; Biwabik, 70,000; Minnewas, 12,000; Oliver, about 35,000; Mountain Iron, about 40,000; Commodore, 68,000, or a total of a trifle over 1,000,000 tons. Total season's shipments for 1892 from Minnesota, then, only including the Vermilion, were 1,160,000 tons.

Iron—Mesaba Range.

(From our Special Correspondent.)

Biwabik.—Several stripping contracts for winter work have been let. Operations will be carried on steadily if the winter is not too severe.

Oliver.—Night operations are stopped, and the stripping operations of Drake & Stratton Company, of Pittsburg, have also been discontinued, preparatory to a new contract. Officers of the company have been here this week discussing the propriety of stripping during winter.

Iron—Vermilion Range.

Armstrong.—There was recorded in the register of deeds office last Friday, says the Vermilion "Iron," a deed of lands in Sections 7 and 8, 62-14, from Peter Armstrong to the Minnesota Iron Company. This is the famous Armstrong iron claim which has been in litigation in the land department for the past eight years. It will be remembered that Armstrong's entry was upheld by the Secretary of the Interior and the Minnesota people were the transferees.

Charleston Iron Company.—At a special meeting of this company recently, A. E. Humphreys was re-elected president; William Buckley, vice-president and general manager; W. L. Jackson, secretary and treasurer, and Mose Stewart, Jr., and James McKinley as directors. The old lease of the Buckley property was canceled, Mr. Buckley giving the company full release for royalty now due. It is stated money will be raised as soon as possible to develop the lands in 58-17, adjoining the Adams mine.

Commodore.—This mine is still employing 200 men, and the managers expect to make up 80,000 tons shipped for the season.

MISSOURI.

Linn County.

Marceline Coal Mine.—The Atchison, Topeka & Santa Fe Railroad Company purchased from the Kansas & Texas Coal Company this mine, about 100 miles northeast of Kansas City, on the Chicago line of that railway. It has one shaft and a 28-in. vein of coal and has been operated by the Kansas & Texas Company with a force of 40 men who hoisted about six cars of coal a day. The Santa Fe, it is said, will put in a force of 200 men.

MONTANA.

Lewis & Clarke County.

(From our Special Correspondent.)

Piegan Mining Company.—This company is negotiating for a 20-stamp mill, as the mine shows a large amount of ore, free milling, both high and low grade gold, carrying a good percentage of silver.

Madison County.

Lucas Mine.—This mine has been sold to Tacoma and New York parties for $10,000.

Meagher County.

Puritan Mining Company.—Only about 20 men are now employed at this property. Operations will not be entirely discontinued.

Winston Mining Company.—Shipments are now being made at the rate of two carloads per day.

Missoula County.

(From our Special Correspondent.)

Iron Mountain Mining Company.—This company began work October 1st with miners' wages, $3; shovelers and carmen, $2.50. On that basis, it is claimed, the company can produce silver bullion at 40 cents. The mine can average one car per day of shipments of concentrates.

Park County.

Georgia Mill.—This mill has made a satisfactory test upon the ores of the Alice and Brilliant mines, and in consequence the mill will be kept running.

Silver Bow County.

Livingstone Coal and Coke Company.—A strike of good coking coal is reported in level No. 3 of this mine.

Mansfield Mine.—A good strike has been made at this mine, the run being 5 ft. wide with a pay streak of 20 in. It runs about $32 in gold and $12 in silver. The property is worked by a tunnel. The owners are preparing to put up an arrastra.

(From our Special Correspondent.)

Anaconda Company.—Most of the men were laid off temporarily on the night of October 2d, the cause of the shutdown being unknown. It has been noticed that the ore shipments from the Hill have been diminishing for the past few days. It is probable that the shutdown will be but temporary.

Butte & Boston Mining Company.—The annual report, as filed on September 30th, gave capital stock, $5,000,000, all paid-in., and existing indebtedness, $2,215,220.

Montana Ore Purchasing Company.—This company, better known locally as Heinze's Company, started up its converters on September 23d. It was hoped that the start could be made on the 20th, just three months after the commencement of this part of the plant, but a defective blast main caused delay. On the second start everything ran smoothly and without hitch. The converters are under the immediate charge of C. W. Parsons, who for several years was converter foreman at the Parrot, and his men are also for the most part those who have formerly worked at the Parrot. The superintendent of the smelter, under whose charge the plant was, is Herman Bellinger. The capacity of the plant is from 1,000,000 to 1,250,000 lbs. of copper per month. It was built by the Western Iron Works, of Butte, after the Parrot company's plans.

Moulton Mill.—This is the only custom mill at present operating, and it has ore in sight for several weeks to come. This principally comes from leasers, who are forced by the lack of employment and the necessity of doing something to mine rock they would have laughed at a year ago.

NEVADA.

Eureka County.

Richmond Consolidated Mining Company.—At the annual meeting in London, England, September 29th, the retiring directors, Mr. Probert and Hon. Randolph Stewart, were re-elected. A dividend of 1s. per share was announced. The action of the directors in bonding a new mine in Butte County, Cal., was approved and the purchase of the mine authorized.

Storey County—Comstock Lode.

Comstock Tunnel Company.—At the annual meeting this week the old directors were re-elected, with the addition of Mr. Maurice M. Muhleman, of New York.

Hale & Norcross Mining Company.—It is reported that a majority of the directors of this company are in favor of dividing the 26,451 shares of treasury stock among the outstanding stockholders instead of selling them in the market. The matter will be decided by calling the roll of stockholders at the special meeting soon to be held.

(From our Special Correspondent.)

The following is the weekly statement of ore hoisted from Comstock mines and milled, with the average car sample and battery assays, bullion product, etc.:

Mines.	Ore H'st'd	Car S'mple Assay.	Ore Mil'd.	Av. Bat'ry Assay.	Bullion for Week.	Total.
Con.. Cal. & Va....	281	$28.43	490	$24.50	.....	14,443·15
Potosi.....	188	24.63	215	23.58	.....	38½ lb.
Savage ...	262	25.87	315	21.76	$4,800	294 lb.

NEW JERSEY.

Morris County.

Hurd Mine.—Work has been resumed at this mine, and a double shift has been put on.

NEW MEXICO.

Cole County.

(Reported for the "Engineering and Mining Journal.")

The camp of Amizett is steadily improving in the character and quality of ore and in the number of men at work. Chicago parties have just closed up a deal on the gold and copper claims known as the Fraser group. They have paid some cash and taken a lease and bond for $125,000.

C. V. Kittredge and James B. Hinchman have just purchased five gold claims, including the Gold King, for the sum of $50,000, part cash and a short time bond. They have let a contract for a 400-ft. tunnel and work has commenced.

The Lone Star shaft has reached a depth of 180 ft. and the vein now shows a width of 23 ft. They are taking out a good quantity of ore.

Denver parties are erecting a fine stamp mill just above the town of Amizett, for custom work, and the mill will soon be completed and in running order.

Lucas Placer Mining Company.—This company, of St. Louis, has started work on a large scale at the mouth of Taos Creek and along the Rio Grande del Norte. They are building a ditch to carry 1,000 in. of water, and expect to put in as many as 20 machines as fast as possible. The sluice boxes used are something not generally in use. All the large stones are taken out by a perforated steel plate and only the fine sand and dirt passes to the machine proper, where, by passing all the dirt over boxes with bottoms covered by burlap, they claim to catch all the gold in the gravel.

Grant County.

Aztec.—The tunnel at this property is nearly finished, and it is expected that the mine will resume operations shortly with a large force of men.

Langston.—This mine, at Pinos Altos, has closed down temporarily.

Maud S.—A body of high-grade ore, 8 ft. wide, says the Silver City "Sentinel," has been encountered in the lower workings of this mine, at Mogollon.

OHIO.

Allen County.

Voodoo Oil Company.—This company last week, according to "Stowell's Report," made a heavy strike of oil on the Thomas farm, in Plain township, near Lima; the company struck sand on Friday and shut down until Saturday, when, at the depth of only 15 ft. in the sand, the well made four flows inside of an hour. The strike was an unusual one for that field, as the sand generally has to be penetrated a depth of about 30 ft. and then shot before the wells do much good. The well made a heavy flow, the output being estimated at 100 barrels an hour.

Guernsey County.

Forsythe Coal Mine.—The miners here have not yet resumed work. The agreement to arbitrate the matter of the discharge of men was declared off by the operator. The miners have asked the State Board of Arbitration to investigate the differences.

Jackson County.

The trouble between the coal operators and miners has been settled. The miners last week held mass meetings at Wellston, Jackson, Glen Roy and Coalton, and voted on the last proposition of the operators, to accept pay once a month until January, and then return to semi-monthly payments. The vote stood 1,250 for resumption of work on that basis, and 750 against it. Resumption began October 9th.

Mahoning County.

Church Hill.—At this place Col. Evan Morris has been for some time sinking a shaft, and last week found a vein of coal at a depth of 190 ft. Most of the mines in this neighborhood were worked out some years ago.

OREGON.

Baker County.

Black Butte.—The mill at this mine is now running and is reported as doing well.

Red Jacket.—A small but rich pocket was recently struck in this mine at Cornucopia.

PENNSYLVANIA.

Anthracite Coal.

A press dispatch from Pottsville says that a water famine again threatens the towns in the Mahanoy Valley, from Mahanoy City to Ashland. The Girard Company, which furnishes water to the towns of Girardville, Colorado, Lost Creek, William Penn and all collieries on the Girard estate, has restricted the use of water to put one hour in 24, giving the collieries water sufficient only to supply boilers. It is feared that a complete suspension of these workings will be necessary in a few days.

Lehigh & Wilkes-Barre Coal Company.—According to the Wilkes-Barre "Leader," the new breaker, near Ashley, is nearly finished, but the machinery is not in, nor are the adjustments made. The new shaft is now down 420 ft. The upper veins have been passed, and 200 ft. more will bring the shaft to the 20-ft. Baltimore vein. This will be worked first of all, and while operations are going on there the shaft will be sunk at night to the Red Ash, 300 ft. below, or 920 ft. below the surface. The company is about to flush its abandoned workings with culm. Culm flushed into an abandoned working fills in so tightly that it will support the strata above as well; thus, a large part of the remaining pillars can be taken out easily and safely. This plan is about to be adopted by the company, and by John C. Haddock, whose coal operations adjoin at Plymouth.

Mill Creek Coal Company.—The breaker at the New Boston colliery, operated by this company, was destroyed by fire on the morning of October 12th. The fire started in the engine-room. The breaker was valued at $50,000. The colliery, which is thus stopped for the present, employed 350 men and boys.

Old Forge Coal Company.—An explosion of gas occurred in this company's Columbia colliery, at Duryea, October 9th, injuring six men, two of them fatally. The six men composed a shift and were engaged driving an opening in the fourth vein. The cause of the explosion cannot be accounted for. The force of the explosion dislodged a number of the beams in the shaft and work was discontinued owing to the danger.

Bituminous Coal.

Crump & Co.—The 150 men employed in these mines, at Dravosburg, have decided to accept the 2½-cent rate. They will return to work this week. Mr. Crump told them they could go to work, but that he could not promise them any money. He said he would stock up the company's store and they could have all the provisions they wanted. The men are glad to go to work on these terms. The only other miners working on the river are Walton's.

Mehard-Densmore Coal Company.—This company has been organized at New Castle, Pa., with $32,000 capital. The directors are Mary J. Mehard, Robert H. Mehard, Wampum, Pa.; Clinton Densmore, Springfield, Mass.

Normalville.—A new syndicate has bought the Rogers and other properties at this place, near Uniontown, including 3,000 acres in all. The land is believed to be underlaid with a 7-ft. and a 5½ft. vein of coal, limestone and fireclay. There is also an abundance of fine timber on the property. The land is situated on Indian Creek and a branch railroad, five miles in length, will be built to connect with the Baltimore & Ohio, and a rich and undeveloped territory will be opened up. The coal can be reached by drift mines, self-draining. The company is composed of J. W. Carahan and J. M. Patterson, of Pittsburg; W. D. Rogers, of Connellsville; J. I. Rogers and Dr. A. J. Rogers, of Scottdale, and several New York capitalists.

Pittsburg.—The conference committee of the railroad coal operators and the United Mine Workers' Union held another meeting October 9th. No agreement was reached and the unemployed miners will remain idle. The operators claimed they could not afford to pay 79 cents per ton while some of the mines now working are paying but 74 cents.

SOUTH DAKOTA.

Fall River County.

Pringle Mica Mine.—A new tunnel driven in has just reached the main body of the mica deposit. A shaft is also to be sunk 130 ft. Shipments of mica are now being made.

Lawrence County.

Legal Tender.—The owners of this mine, on Squaw Creek, K. G. Phillips, Joe Schaller and Jno. Adams, have expended a large amount of money in development work, and have exposed a vertical vein of refractory ore which assays well. They have sunk a 60-ft. shaft on this vein, the ore extending outside the shaft. Mr. Adams recently made a proposition to his partners to execute a large amount of work on the property and take the ore mined for his pay.

Little Ellen.—On this property a new tunnel is now in 30 ft. It will be driven under the ore body, and an upraise connection made.

Pocahontas.—The shaft started in and near the face of the tunnel some time ago on this property, says the Deadwood "Pioneer," has now reached a depth of 30 ft., and in place of one seam of ore there are now five. The shaft was started in quartzite, to sink to the second contact in a few feet from the floor of the tunnel. The first ore seam was struck, and the others in rapid succession. All of them come up through the horizontal formation of quartzite, being vertical stringers from the main ore body, which, from indications, will be found to exist on the second contact, about 15 or 20 ft. lower down. During the past few days a grayish talc and some of bright red has come in connection with the ore seams. This strata of quartzite, in which the shaft is being sunk, ranges from 25 to 40 ft. in thickness, and is underlaid by a shale which forms the roof of the pay ore, as is demonstrated in adjoining workings.

TENNESSEE.

Anderson County.

Four hundred miners, who have been on strike for three months in the Coal Creek and Briceville districts, returned to work on the 10th inst., on a compromise, which is a 10% reduction and $1 off on house rent.

WEST VIRGINIA.

Coal.

An advance statement of the report of Inspector D. M. Harr, of the First district, for the year ending June 30th, says that the production of coal in the district for the year was 2,762,970 tons, as against 2,427,662 tons in the preceding year, an increase of 335,308 tons. The production of coke was 364,373 tons, an increase of 16,148 tons. During the year there occurred in the district 12 fatal accidents and 38 non-fatal accidents. There was one life lost for each 230,248 tons of coal produced, and one non-fatal accident for each 72,710 tons. The average annual earnings per miner was $470 throughout the district. There were 2,644 miners employed, 855 day laborers and 381 coke workers, making a total number of men employed about the mines of 3,880. In addition to the mines reported, there are in the district a large number of small mines, employing less than 10 men each, which do not come within the purview of the law. The production of these mines cannot be reliably estimated, but it is considerable, especially in the fall and winter season. One mine, Mountain Brook shaft, at Newburg, Preston County, has been abandoned and seven new ones have been reported, viz.: Glendale mine, in Marshall County; King, in Marion; Blanch, in Brooke; Briar Hill and Findlay & Whitehead, in Harrison; Thomas shaft, in Tucker, and Pierce, in Mineral. Since the end of the year another new mine has been opened by Hutchison Brothers, near Worthington, in Marion County.

WISCONSIN.

Milwaukee County.

John M. Farmer has discovered a deposit of tripoli within the city limits of Milwaukee.

WYOMING.

Rock Springs District.—In September, one year ago, the mines at Rock Springs sent out 7,000 cars of coal. This month, just closed, the output will fall short of that by about 3,000 cars, while there was a decrease in the output of 2,000 cars for both July and August, compared with the same months in 1892, says the Laramie "Boomerang."

The Union Pacific coal mines, at Almy, are working but a small force, and hence the output of coal is light.

The Rocky Mountain Iron and Coal Mining Company, usually known as the Central Pacific, at Red Canon, is putting out about its usual quantity of coal, ranging from 500 to 600 tons daily. Lately the miners' pay was reduced from 74 cents to 65 cents per ton.

Fremont County.

Burr.—It is reported that the pocket in this mine, in the Lewiston district, has been cleaned up, and the gold product from the ore taken out is said to be $60,000. The lode is from 7 to 10 ft. thick and assays from $40 to $75 per ton.

Golden Rod Mining and Milling Company.—This company has been incorporated under the laws of Wyoming, to develop and operate several gold mines in the South Pass County. The capital stock is $500,000. E. C. Bartlett and J. E. Nevin, of Omaha; T. W. Clarkson and A. B. Palmer, of St. Louis; A. M. Palmer, of Miner's Delight, are the trustees for the first year. The principal place of business of the company will be Miner's Delight.

FOREIGN MINING NEWS.

BELGIUM.

The coal miners' strike has come practically to an end. It did not extend beyond the Charleroi district, and the men there, finding themselves without support, went back to work October 11th.

A cablegram from Brussels says that the striking coal miners in the Charleroi district are tiring of their fight with the mine owners. Two thousand of the men went back to work October 10th and more are expected to return.

BRITISH COLUMBIA.

Alberni District.—Government Assayer Carmichael has sent a report upon this district to the Minister of Mines. In it he says: The vein upon which the principal work has been done has a width of 4 to 5 ft. A tunnel has been run in 18 ft. on the vein. Assays run from $2 to $268 per ton, the main vein quartz showing about $40.

CANADA.

A press dispatch from Toronto says that Mr. R. G. McConnell, who was sent by the Ottawa Government on an exploring expedition in the Mackenzie River District, has arrived at Vancouver, and reports that he has discovered the source of the Mackenzie River to be a lake at the head of the Findley River, and that gold was found by him in abundance for 250 miles along Findley River.

COLOMBIA.

Colombian Hydraulic Mining Co.—This mine has been forced to close down by the legal authorities, it being claimed that its working polluted potable water. The case is now being tried at Ibaque and it is expected that the Cerita mine will be allowed to continue.

Gravel Gold Mines, Limited.—From July 20th to August 21st, the water ran 517 hours. Washing has been continued on the El Chasco bank and a large amount of gravel run off. The pipe clay still hinders working. The new ditch was finished in July, but heavy rains caused landslides, and a large amount of repairs is necessary to put it in working condition.

GREAT BRITAIN.

Coal Miners' Strike.—The mayors of several of the cities in the district affected by the coal strike held a conference in Sheffield, October 9th, and submitted a plan for settlement, the chief features being as follows: That the men return to work at the old wages, but consent to a reduction of 10% in December; that the masters make advances to reinstated men in order to alleviate distress, the advances to be paid in weekly installments; that delegates of the masters and of the men convene and formulate a scheme to establish a tribunal of conciliation, whose duty it is to settle all disputes.

On October 11th this proposition was accepted by the Lancashire and Cheshire miners and many of them returned to work. The Northumberland men still hold out, but it is believed that the strike will soon be at an end.

ENGLISH GUIANA.

During the present year up to September 7th English Guiana has produced 92,198 oz. of gold worth $1,651,287.

FRANCE.

There seems to be no present prospect of a settlement in the coal miners' strike in the Pas de Calais. Much bad temper has been shown on both sides and many disturbances are reported.

MEXICO.

Guanajuato.

Negociacion le Cinco Señores, Pozos.—Several lots of ore, valued in the aggregate at $70,000, have been shipped to Germany, and a new lot of high-grade ore is now being got ready for shipment. The weekly output is from 1,500 to 2,000 cargas, assaying upward of 30 marcs per monton of 32 quintals, in silver, with a high percentage of gold. The steam hoist will soon be in working order and there will then be a considerable increase in the output. The output of the Justicia mine, belonging to the same company, is improving both in quantity and quality. It is expected that the vein of the Nayalito mine, which also belongs to the company, will soon be cut.

Tepic.

The Bureau of American Republics has advices to the effect that work on the British Mexican Railway has been temporarily suspended. The road was projected to extend from Jimenez, in the State of Chihuahua, to the mining camp of Sierra Mojada, in the State of Coahuila, a distance of 150 miles. It was also the intention to touch at Jaco Lake where abundant salt deposits exist. About 30 miles have been graded.

Announcement has been made of the sale of a gold mine on the El Bote vein, at Zacatecas, to Messrs. E. P. Denison, William Curtis and others, of Richmond, Ind. A large quantity of good grade ore is said to be in sight.

La Yesca Gold and Silver Mine.—The first statutory meeting of this company was held in London on September 19th. This company was formed on May 19th last to take over the property of the silver mines of La Luz, of Mexico, the company of that name working them being in compulsory liquidation. There has been a great deal of unpleasant personal recrimination over this reorganization, and Mr. Banning, the liquidator of the old company, carried through the reorganization for the new owners (who were leading shareholders of the old company) against many obstacles. As it is, the arrangements for working the property are not quite complete owing to the vendor, Senor Padilla, not having agreed to the terms of purchase. There is a sufficiency of money subscribed in the new company for starting operations at any time. No more work has been done on the mines and plant than to keep them in order. Very little information is obtainable as to the real value of the metalliferous deposits.

NEW SOUTH WALES.

Broken Hill Proprietary Company, Limited.—The London Board of Directors of the British mine have confirmed the negotiations recently entered into by the colonial board with the above named company for the leasing of three of the British furnaces, and possession of them will be given as soon as all necessary repairs are made. No. 1 furnace is being pulled to pieces and reconstructed. The length of term of leasing will be three months direct, after which period it will become a month's option on either side for annulling the contract. The furnaces are to be returned in good order and condition, orninary wear and tear only excepted. As these furnaces have each a capacity of smelting from 270 to 300 tons per week, the outcome of the material treated by the Proprietary company will thereby be considerably increased. So far as the sale of ore is concerned, this will probably remain in abeyance for the present until Mr. Jamieson satisfies himself of the approximate reserves of ore in the mine, he being now engaged in making a thorough and complete examination of the underground workings. A scale of charges has already been drawn up to be used in case of arrangements being made. The silver and lead will be sold at a fixed price per ton. If the market falls, sellers and purchasers will bear equally between them the difference in the fixed price and the market price of the day. So far as labor is concerned this matter will rest entirely with the lessees of the furnaces, and they will make their own arrangements. All told, there are now about 70 men employed on the mine.

Hillsgrove District.—The proposed general reduction in gold miners' wages went into operation

Sept. 11th. A serious matter of local concern is the sudden drop in the buying price of raw antimony ore to 90s. from 160s., which was the price a few months ago.

NOVA SCOTIA.

Dominion Reduction Company.—This company's plant at Windsor is now nearly completed and will be started up next month. At the annual meeting of the company in Portland, Me., recently, the following board of directors was elected for the coming year: Henry S. Sherman, Hanson Gregory, Jr., F. Rodward Hall, A. T. Vanhorn, Orin A. Morse, Charles S. Hardy, Henry B. Wells. Henry S. Sherman was elected treasurer, and Thomas L. Talbot clerk.

ONTARIO.

Atiko-Kan Iron Range.

(From our Special Correspondent.)

On valuable outcroppings of this almost unknown iron range, lying along the Atiko-Kan River in Ontario, nearly 100 miles north of the Minnesota boundary and 50 miles from the Canadian Pacific line, options were given three years ago to a Belgian syndicate, reported at that time to be of great strength. These options expire with Oct. 31, but arrangements are being made looking to a continuance. The Belgians are waiting for a decision in tariff changes, particularly on the import of iron ores, before closing their purchase.

QUEBEC.

Beaver Asbestos Company.—This company, although not working to full capacity, has a fairly strong force mining in the main pit. A second cable derrick has been added to the plant, which greatly facilitates the handling of material.

United Asbestos Company.—This company employs, at last report, about 65 men and boys. The management is removing a portion of the dump from what promises to be very productive ground, and tramming it over the mountain. A new cobbing house, 40 × 70, has been added to the buildings, together with a couple of Blake crushers, which are worked with a view to the recovery of the lower grade asbestos.

Cassidy Mica Mine.—Messrs. W. A. Jamieson & Co. have 12 men working their mica mine in the township of Hull, and 17 men on the Cascades mine. Fifteen tons were raised last month.

Lake Gerard Mica Mining System.—This Company continues to work a reduced force at Lake Gerard and other mines.

TASMANIA.

Mount Bischoff Tin Mining Company.—The report of the directors of this company submitted to the shareholders at the general meeting of the company held at Launceston on July 31st stated that the accounts submitted at the last general meeting showed a balance to the credit of the profit and loss account of £32,005, to which had since been added the sum of £40,589, being the earnings of the past half year, making a total credit of £72,595. Of this sum £33,000 has been distributed in dividends, £1,237 paid for dividend tax, and £46 for interest, leaving a balance to the credit of the profit and loss account of £38,311. In addition to the ordinary expenses of the mine, £899 had been expended in connection with water races and reservoirs, and £2,702 in the purchase and erection of plant. The quantity of ore obtained during the past six months, and since the formation of the company, was as follows: Obtained during the last six months, 1,132 tons; since the formation of the company, 40,524 tons. The smelting operations for the half year ending June 30th were as follows: Total quantity of ore smelted 2,174 tons, yelding 1,484 tons. Of this 1,138 tons, yielding 766 tons of tin, was smelted on account of the company; and 1,036 tons, yielding 717 tons of tin, on public account. The average assay of the refined tin is 99·87%, and the slag 5·4%.

(From an Occasional Correspondent.)

Mount Lyell.—These copper mines are shipping considerable ore to London. It has been averaging 25% copper and 1,200 to 3,000 oz. silver. The last three shipments brought net prices of £276, £323 and £379 sterling per ton respectively, the results of the English sampling averaging £40 per ton better than the rough sampling at the mine. The ore is an almost pure chalcopyrite, with nodules of silver glance all through it, from the size of wheat to that of an apple. But the pure, yellow copper pyrites in this ore averages 800 oz. silver per ton. This all comes from a pocket or chute on the footwall, some 320 ft. from the surface, where waters have apparently dissolved up silver and copper while trickling through the ore-body and then redeposited them in a concentrated form.

WEST AUSTRALIA.

Murchison Gold Field.—Mr. Lindsay, the explorer has guaranteed to find water, provided the government will allow him the right of selling the same on Southern Cross and Coolgardie. Over 200 Murchison diggers have arrived at Southern Cross, bound for Coolgardie. About 1,500 men are now on Coolgarlarrie. Water is getting scarce and provisions short, there not being sufficient supply to meet the demand. Egan's Reef, at Coolgarlarrie, is looking well. About 45 miles from Coolgardie on the Roaring Gimlet road, a party dropped upon a very rich reef.

COAL TRADE REVIEW.

NEW YORK, Friday Evening, Oct. 13.

Statement of shipments of anthracite coal (approximated) for week ending October 7th, 1893, compared with the corresponding period last year:

	1893. Tons.	1892. Tons.	Difference.	
Wyoming region	517,502	531,245	Dec.	13,743
Lehigh region	173,070	166,237	Inc.	6,833
Schuylkill region	314,094	294,089	Inc.	20,005
Totals	1,004,666	991,571	Inc.	13,095
Total for year to date..	32,284,765	31,560,358	Inc.	724,407

PRODUCTION OF BITUMINOUS COAL, in tons of 2,240 lbs., for week ending October 7th and year from January 1st:

Shipped East and North:	1893. Week.	1893. Year.	1892. Year.
Phila. & Erie R. R.	323	63,488	67,091
Cumberland, Md.	95,427	3,177,678	2,902,567
Barclay, Pa.	417	38,977	55,186
Broad Top, Pa.	8,216	467,445	464,995
Clearfield, Pa.	68,934	2,979,070	3,022,810
Allegheny, Pa.	27,013	964,738	976,330
Beach Creek, Pa.	46,738	2,201,840	1,814,879
Pocahontas Flat Top	50,782	2,175,951	1,996,773
Kanawha, W. Va.	76,778	2,496,071	1,879,359
Totals	374,628	14,565,258	13,179,930

Shipped West:	1893. Week.	1893. Year.	1892. Year.
Pittsburg, Pa.	21,552	923,264	973,279
Westmoreland, Pa.	31,975	1,466,206	1,312,747
Monongahela, Pa.	13,562	532,025	499,972
Totals	67,089	2,921,495	2,785,998
Grand totals	441,717	17,486,753	15,965,928

PRODUCTION OF COKE on line of Pennsylvania R. R. for the week ending October 7th, 1893, and year from January 1st, in tons of 2,000 lbs.: Week, 34,165 tons; year 3,306,625 tons; to corresponding date in 1892, 4,134,624 tons.

Anthracite.

The anthracite coal trade continues in a good condition. It is possible that during the past week there has not been quite so heavy buying as during the week before, but the demand, for all that, has been better than was expected a month ago. All things considered the market is in a very good position to-day. Consumers show more inclination to lay in supplies and prices are probably firmer at present than at any time during the current year. The output thus far is in excess of that for the corresponding period of 1892 and stocks are not very heavy. It is probable that the allotment of 3,500,000 tons for October, which was "recommended" at the last meeting of the sales agents, will be exceeded, just as September's was, although it is not likely that the excess this month will be as great proportionately as it was last month.

It is well, however, for anthracite producers to bear in mind the impossibility of a very great coal production during the remainder of the year, when the consumption will necessarily be smaller than it was last year, owing to the cessation of operations at the plants of many heavy consumers. A trade such as the present one is the best. There is no "rush" and no undue haste in laying in stocks, but rather a good, steady, conservative buying.

At last, after three months of discussion, the Lehigh Valley and the individual operators along its line have reached an agreement. On last Wednesday the operators agreed to buy at par $2,000,000 of Lehigh Valley Coal Company's first mortgage bonds, bearing interest at 5% per annum and guaranteed by the Lehigh Valley Railroad Company.

This was done in order to give the Valley company the capital necessary to carry on the business. The new contract is exactly like the old one between the Philadelphia & Reading and the operators. The Lehigh Valley company will purchase the operators' coal on the basis of 60% of the tidewater price. This matter is now at an end and the moral effect which has been produced on the trade is good from the seller's point of view. There will not be so much uncertainty as to the future course of the market, and the old bugaboo about "cutting of prices" will not be heard so frequently. The Lehigh Valley has acted wisely and so, we may say, have the operators. The only one to suffer is the domestic consumer, who is obliged to pay more for his coal, with the element of competition thus eliminated. Between the producers and agents and the retailers they manage to tax the household buyer pretty well.

The Reading official circular rates, subject to the usual commissions, are as follows, f. o. b. at its New York harbor shipping ports:

	Broken.	Egg.	Stove.	Chestnut.
Hard white ash	$4.00	$4.25	$4.60	$4.60
Free white ash	3.90	4.15	4.60	4.60
Shamokin	...	4.50	4.80	4.60
Schuylkill R. A.	....	4.50	4.95	4.75
Lykens Valley	5.15	5.80	6.25	5.50

Pea, $2.50@$2.75: No. 1 buckwheat, $1.80@$2.00; No. 2 buckwheat, $1.50@$1.80.

The Reading Railroad system reports that its coal shipment (estimated) for last week, ending October 7th, was 320,000 tons, of which 40,000 tons were sent to Port Richmond and 30,000 tons were sent to New York waters.

There have been some heavy shipments of anthracite from New York harbor points of late, and the demand for vessels has been such as to advance seagoing freights. The result of this has been that many vessels have been attracted hither from the lower ports.

Bituminous.

No change of importance has occurred in the soft coal market since our last report. The demand continues steady, with the movement of coal to Greenwich over the Pennsylvania Railroad greatly improved. Baltimore shipments show a steady decrease. Ocean freights are nominally the same as last week, as follows: From Philadelphia: To Boston, Salem and Portland, 75c.; Sound ports, 65c.; Newburyport, 85@90c.; Portsmouth, 80c.; Bath and Bangor, 80c. alongside; Gardiner, 80c. alongside and towage; Wareham, 85@90c.; Dover and Saco, 90c.; and towages; Baltimore, Newport News and Norfolk, 10c. above these rates.

We hear of some large shipments of coal to Cuba, and it appears probable that the tonnage going there this year will be largely in excess of that of last year. In regard to the much talked of shipments to Europe we are unable to learn of any. It is the general opinion among the trade that if such shipments have been made they have been more in the nature of a speculation than in the way of legitimate business. Of course, with coal selling at $10 a ton on the other side our product could be laid down there and sold at a handsome profit. However, late cable news from England is to the effect that the strike is at an end, and the high price of coal there will promptly decline. It is doubtful, therefore, whether, by the time any shipments from this side could arrive there, that market would not have reverted to nearly normal prices.

Boston. Oct. 12.

(From our Special Correspondent.)

There is very little that is new in the market. Dealers, as last noted, are buying only in a moderate way, whereas they should be purchasing heavily for their winter supplies. They probably feel as though they could afford to wait. Some are figuring on an outbreak between the Reading and Lehigh Valley people. On the other hand, however, high freight rates are staring them in the face. The companies are maintaining prices better to-day than they have been for several months past. The prices as quoted here are net New York: Stove, $4.45; egg, $4; free broken, $3.75; chestnut, $4.45. Individual's white ash coals can be had at the following prices: Stove, $4.15@$4.25; egg, $3.75@$3.85; free broken, $3.65@$3.75; chestnut, $4.15@$4.25. Lykens Valley coals are quoted here at the net price at Philadelphia: Broken, $4.90; egg, $5.55; stove, $6, and chestnut, $5.25.

There is a fair and improving demand for bituminous coal yet the mills are not buying freely. Prices remain steady. Cumberland on cars here is worth $3.50; New River and Pocahontas, $3.40; Clearfield, $3.30.

The New England Association of vessel owners say they are going to advance rates 25c. per ton on November 1st, which would put rates from Philadelphia, Newport News and Norfolk to this port at $1 per ton, and from Baltimore at $1.10, and 10c. less to Sound points.

Present rates are as last reported; From New York, 60@65c.; from Philadelphia, 75c.; from Baltimore, 80c.; from Newport News and Norfolk, 75@85c.; to Sound points, 65c.

In a retail way trade is lighter than it was a week ago, owing to the mild weather we have been having. Prices are as last reported.

Buffalo. Oct. 12.

(From Our Special Correspondent.)

The anthracite coal trade does not present any new features and quotations are unchanged. The mild weather is against any demand except in a retail way for family use, as small dealers in near-by towns are holding off till the last moment in consequence of the stringency in money matters.

Lake shipments for the past week show a large decline from the preceding week's report, and the movement thus far this week is light at unchanged figures.

Bituminous coal is fairly active considering the uncertain condition of business affairs. Supply good and quotations nominally unchanged.

The shipment of coal westward by lake from Buffalo from October 1st to 7th, both days inclusive, aggregated 76,826 tons, distributed as follows: 34,950 tons to Chicago; 9,075 to Milwaukee; 16,200 to Duluth; 500 to Bay City; 1,000 to Marquette; 5,900 to Superior; 2,790 to Toledo; 2,000 to Washburn; 600 to Saginaw; 500 to Detroit; 1,300 to Gladstone; 1,100 to Green Bay and 11 to Port Dover.

The rates of freight were as follows: 25c. to Chicago, Milwaukee, Detroit and Bay City: 20c. to Washburn and Toledo, 40c. to Saginaw, 15c. to Duluth and Gladstone, 30c. to Marquette, Marinette and Green Bay and 35c. to Port Huron. Closing quiet and steady. Light stock for shipping purposes.

Our Water-Works Commissioners are experimenting with soft coal for fuel to take the place of natural gas at the pumping station. The trouble principally experienced is from the smoke, but appliances are to be tried to remedy that evil.

Capt. John M. Brinker, the well known coal producer and dealer of this city, has been nominated bp acclamation for the office of Erie County Treasurer by the Democrats. He is of excellent standing in the community and has many personal friends.

Chicago. Oct. 11.

(From our Special Correspondent.)

It is obvious to the most superficial observer that sales of anthracite, since the first days of October,

have been growing lighter, that is to say, quick shipment orders have dropped off, and in many cases requests for the postponement of delivery until later in the month have been made. The cause of this has been the warm weather over the whole Northwest.

Anthracite during the past few days has been much quieter than during the last five days of September. Orders are lighter and some of the inquiry which the cold weather brought into the market has been allowed to drop. This is the situation at present, and while indications point to an increased tonnage later, as also to a fairly active demand, if only from the natural growth of population, there is just now a lack of animation. Prices are somewhat irregular, both wholesale and retail, and it is freely admitted that the circular is not regarded by some agents.

Circular prices are at the following rates: Lehigh lump, $6 25; large egg, $5.85; small egg, range and chestut, $6·10. Retail prices per ton are: Large egg, $6.75@$7; small egg, range and chestnut, $7@$7.25.

Bituminous coal is, all things considered, in a more healthy condition than anthracite, as notwithstanding the wholesale closing down of so many factories the tonnage consumed, according to reliable statistics, shows an increase over that of a year ago. All Western trunk railroads have taken less than the mininum amounts called for in their contracts on account of the great falling off in their freight traffic, which is not being counterbalanced by the increase in passenger service. In spite of all the drawbacks the natural growth of the country is shown in the increased tonnage of soft coal marketed here. Indications now are that there will be ample stocks at Lake Superior points for rail and commercial purposes.

At this writing it is known that in northern Iowa the farmers have intimated to dealers in country towns their purpose to burn corn for fuel, as it is cheaper than coal at present prices. Hocking is in good demand, shipments more free than they have been and circular well maintained. The receipts show a big increase for September, and the average price fully 10c. per ton higher than for the same month last year. Northern and central Illinois coal is in good demand, as well as Indiana block coal. Prices of bituminous per ton of 2,000 lbs. f. o. b. Chicago are: Pittsburg, $3.35; Hocking Valley, $3.35; Youghiogheny, $2.25; Illinois lump, $2.70; Brazil block, $2.25.

Coke likewise shows considerable improvement, but it is not so marked as that for coal, still the gains made each week are satisfactory, the situation considered. Quotations unchanged.

Pittsburg. Oct. 12.

(From our Special Correspondent.)

Coal.—Trade may be termed at a standstill; beyond the local wants there is nothing doing. The outlook for a rise is not very rosy; many are of the opinion that there will be no rise until the snow makes one. Many of the new mines have gone to work at reduced prices; 200 men employed by S. S. Cramp, at Dravosburg, held a meeting and decided to go to work at the 2½ cent rate. When Mr. Cramp was notified of their decision he told them they could go to work, but that he could not promise them any money; he said he would stock up the company's store and they could have all the provisions they wanted, but he could not pay money at present; his terms were accepted.

Connellsville Coke.—The improvements we noted in regard to shipments continues, very much to the satisfaction of both operators and employees. Most of the plants in operation run five and six days; the productions continue to increase. There is talk of firing some ovens. Of the plants in operation 12 ran six days, 14 ran five days and two ran four days. A shortness of water is felt, and there are many points in the region where the rains have not produced the result wanted in starting springs sufficient to supply water to keep the plants in operation long enough to pay them to fire up the ovens. The week's shipments aggregated 52,272 tons, distributed in cars as follows: To Pittsburg, 1,300 cars; to points east, 700 cars to point west, 874 cars; total 2,874 cars. Western shipments increased 124 cars; eastern snipments 50 cars and Pittsburgh shipments 30 cars; total increase, 204 cars. Present rates for various kinds are: Furnace coke, f. o. b. cars at ovens, $1.35 per ton; foundry coke, f. o. b. cars at ovens, $1.65 per ton; crushed coke f. o. b. cars at ovens, $1.75 per ton. Add 70c. per ton and you have the price of coke delivered at Pittsburg.

IRON MARKET REVIEW.

New York, Friday Evening, Oct. 13, 1893.

Pig Iron Production.

Fuel used.	Week ending Oct. 13, 1892.		Oct. 13, 1893.		From Jan., '92.	From Jan., '93.
Anthracite.	67	27,750	44	20,587	1,370,184	1,212,591
Coke.....	128	116,605	56	58,126	5,448,994	4,707,665
Charcoal...	43	9,733	28	5,570	425,843	331,776
Totals....	238	154,088	128	84,283	7,245,021	6,252,032

Pig Iron.—It grows monotonous to report from week to week that no change has taken place in the pig iron market. Nevertheless such is the case. The features which have characterized this market during the past week are exactly those which have characterized it for many weeks. The market is thus neither better nor worse than it has been, unless we consider that it is worse because it has not improved. Buyers continue their policy of ordering supplies enough for immediate requirement only, and despite the decrease in production, which has kept on, stocks do not diminish proportionately, but rather show an increase. Prices naturally show no improvement. They rule as they have ruled for a month or two past, and are governed by the financial condition of the seller. We do not hear of any large sales during the week. The tidewater prices of the Thomas Iron Company are as follows: No. 1, $14.50 per ton; No. 2, $13.50; No. 3 or No. 2 plain, $12 75. For regular brands we quote as follows: Northern brands: No. 1, $14@$14.50; No. 2, $12.50; gray forge, $12. For Southern iron we quote: No. 1, $13.25@$14; No. 2 F., $12@$13; No. 1 soft F., $12@$13; gray forge, $11.75@$12—all at tidewater. Scotch irons are quoted: Coltness, $21.50@$22; Eglinton, $19.50@$20; Summerlee, $20.

Billets and Rods.—Low prices prevail in this market and a few sales are reported. We quote: Steel billets, tidewater, $21@$23; foreign, $27.75@$28.50; wire rods, domestic, $29.50@$30.50; foreign, $33.50@$40.

Manufactured Iron and Steel.—The dullness which we have been reporting in this market for some time past continues unrelieved. We do not hear of any sales worthy of mention. Prices continue low. We quote Angles, 1·75@1·9c.; axles, scrap, 1·80@2·10c., delivered; steel, 1·75@2c.; bars, common, 1·45@1·60c.; refined, 1·60@1·85c. on dock; beams, up to 15 in., 1·70@2c.; 20 in., 2·10@2·30c.; car truck channels, 2@2·10c.; channels, 1·85@2c. on dock; steel hoops, 1·8@1·9c., delivered; links and pins, 1·70@1·80c.; plates, flange, 2@2·10c.; firebox, 2·5@2·8c.; flange, 2·10@2·25c.; marine, 2·50@2·75c.; sheared, 1·85@2·10c.; shell, 1·95@2·10c.; tank, 1·70@1·9Jc.; universal mill, 1·70@1·90c., tees, 2@2·10c., all on dock.

Merchant Steel.—There has been a slight improvement in merchant steel, although the market, as compared with previous seasons, is exceedingly quiet. Quotations are: Tool steel, $6.50@$6.75 and upward; tire steel, $2@$2.10; toe calk. $2.30@$2.40; Bessemer machinery, $2.10@$2.20. Bessemer bars, $1.60@$1.70; open hearth machinery, $2.25@$2.30; open hearth carriage spring, $2.10@$2.20; crucible spring, $3.75@$4.

Old Material.—We do not hear of any business in this market. It continues lifeless. Nominal quotations are unchanged at $13@$14 for old iron rails and $9@$10 for wrought scrap.

Rail Fastenings.—The market for rail fastenings continues very dull. Quotations remain nominally: Fish and angle plates, $15@$15.80 at mill; spikes, 1·80@1·90c.; bolts and square nuts, 2·45@2·50c.; hexagonal nuts, 2·55@2·60c., delivered.

Spiegeleisen and Ferromanganese.—There is nothing of interest doing in either ferro or spiegel. Quotations are nominally as follows: 10 to 12% Spiegel, $22@$22.50; 20% $25@$25 50. Ferro, $56@$57.

Steel Rails.—Standard sections are in no demand, and we do not hear of any sales. A meeting of the Association was held in this city this week.

Tubes and Pipe.—This market continues quiet. Ruling discounts on carload lots are as follows: Butt, black, 57½, 10 and 5%; butt, galvanized, 50, 10 and 5%; lap, black, 67½, 10 and 5%; lap, galvanized, 57½, 10 and 5%.

Buffalo. Oct. 12.

(Special Report of Rogers, Brown & Co.)

This week has recorded a season of exceptional quietness so far as sales are concerned. There has been some inquiry, but a waiting policy seems to have again seized the trade. Purchases are being put off from ten days to a month, carloads or fifty tons being ordered forward for immediate needs. As a rule buyers are looking for a change or for something a little more definite to turn up.

We quote for cash, f. o. b. cars Buffalo: No. 1 X. foundry strong coke iron, Lake Superior ore, $13.75; No. 2 X foundry strong coke iron, Lake Superior ore, $13.25; Ohio strong softener No. 1, $14; Ohio strong softener No. 2, $13.25; Jackson County silvery No. 1, $16 80@$17 30; Jackson County silvery No. 2, $16.30@$16.80; Lake Superior charcoal, $15.75; Tennessee charcoal, $16; Southern soft No. 1, $13.15; Alabama car wheel, $18; Hanging Rock charcoal, $20.50.

Chicago. Oct. 11.

(From our Special Correspondent.)

The markets generally for crude and manufactured iron and steel have been rather quiet during the past week, and there is a tendency among the larger consumers, with few exceptions, to wait, as they are a little at sea as to the future of their own particular business. A proposition has been made to the employes of the Illinois Steel Company's Works at Joliet to resume work at once at wages based on a certain price for steel billets. The men have the matter under consideration.

Pig Iron.—Demand for local coke iron is of very moderate proportions, and while some orders reach into three figures, the majority of the transactions are for carloads. The feeling of consumers as expressed in their inquiries is that conservatism must be used in ordering supplies, and the bareness of stocks is shown in the frequency of orders for small quantities. A few foundries here and there are starting up, but the larger plants are, with few exceptions, still inactive. In Southern coke iron some business is noted in small lots, but the aggregate tonnage is light, and as most of it is for quick delivery, prices are practically made to suit consumers, though for future shipment agents are asking 50c.@75c. advance on present quotations. Some demand for small lots of Lake Superior charcoal iron is reported. Quotations per gross ton f. o. b. Chicago are: Lake Superior charcoal, $16.00@$16.50; Lake Superior coke, No. 1, $13.50@$13.75; No. 2, $12.75@$13.25; No. 3, $12.25@$12.50; Lake Superior Bessemer, $14.00; Lake Superior Scotch, $14@$14.50; American Scotch, $15.50@$16.00; Southern coke, foundry, No. 1, $13.50; No. 2, $12.00; No. 3, $11.50; Southern coke soft, No. 1, $12.00; No. 2, $11.50; Ohio silveries, No. 1, $16.50; No. 2, $16.00; Ohio strong softeners, No. 1, $16.25; No. 2, $15.75; Tennessee charcoal, No. 1, $16.50; No. 2, $16.00; Southern standard car wheel, $18.25@$18.75.

Structural Iron and Steel.—Business is confined to small lots of beams and riveted columns for building purposes. Bridge material is in light request. Quotations, car lots, f. o. b. Chicago, are as follows: Angles, $1.70@$1.80; tees, $1.95@$2.05; universal plates, $1.70@$1.80; sheared plates, 75c.@$1.85; beams and channels, $1.75@$1.85.

Plates.—A fair amount of transactions is reported from agents' warehouses. An order for 1,000 tons of angles for a windmill concern was backed by a local mill. Steel sheets, 10 to 14, $2.25@$2.35; iron sheets, 10 to 14, $2.20@$2.30; tank steel, $1.90@$2; shell iron or steel, $2.50@$2.75; firebox steel, $4.25@$5.25; flange steel, $2.74@$3; boiler rivets, $4@$4.15; boiler tubes, all sizes 65%.

Merchant Steel continues in steady demand in carload lots and upward, though they are growing less numerous each week. The tonnage so far ordered develops a healthy growth in the implement trades. Quotations are: Tool steel, 6·50@6·75c. and upward; tire steel, 1·85@1·90c.; toe calks, 2·20@2·30c.; Bessemer machinery, 2·05@2·15c.; Bessemer bars, 1·70@1·80c.; open hearth machinery, 2·10c., open hearth carriage spring, 2·10@2·20c.; crucible spring, 3·50@3·75c.

Galvanized Sheet Iron.—Several mill agents report a better demand for carloads, and agents with warehouse facilities note increasing trade in 10 and 20 cwt. lots. Discounts are a little easy at 70, 10 and 5% off on Juniata and 70, 10 and 10% off on charcoal and jobbing quantities at 70 and 7½% off on the former and 70 and 10% off on the latter.

Black Sheet Iron.—There is a moderate demand from mills for early November delivery, mostly for the lighter gauges, Nos. 25, 26, 27 and 28, at 2·75c. for No. 27 common. Jobbing demand is fair at 2·95@3c. for same gauge for iron, and steel sheets are about 10c. higher per 100 lbs.

Bar Iron.—The actual amount of business placed during the week has been light, and while inquiry is fair there is a good deal of hesitation on the part of buyers, for reasons given in our general remarks. Prices are irregular, varying as much as 75c. per ton, though a fair quotation would be 1·43c. for local mills. Some Eastern mills refuse to absorb the 2c. advance in freight from the east to Chicago. Jobbing demand is only moderate at 1·65@1·75c. for iron and steel bars.

Nails.—Wire nails are in active inquiry from mill as many jobbers are willing to lay in fair-sized stocks via the cheaper lake freight, as navigation practically closes three weeks hence. Mill quotation is lower at $1.40@$1.42, and jobbing price is $1.50 in small lots. Steel cut nails are rather more active, also from mill at $1.20, though that has been shaded. Jobbers quote $1.35.

Billets and Rods.—There is practically no inquiry for billets, but some little business could be done if local mills could promise definite delivery; nominally $21.50. Rods dull at $27.50.

Steel Rails.—Orders are again very scarce for standard or light weight sections, though some accumulation has occurred during the protracted shutdown.

Scrap.—Inquiry is improving and small sales more frequent. Railroad, $11.00; No. 1 forge, $11; No. 1 mill, $7.50; fish plates, $12.00; cast borings, $4.50; wrought turnings, $7.50; axle turnings, $7.25; machinery castings, $9; stove plates, $6.50; mixed steel, $8; coil steel, $14; leaf steel, $14; tires, $13.50.

Old Material.—Iron rails are quoted at $15, but no sales reported, as consumers and buyers offer $1 less. Steel rails quiet at $8@$10 according to length, etc. Car wheels stagnant at $13.

Pittsburg. Oct. 12.

(From our Special Correspondent.)

Iron and Steel.—The past week has failed to show any improvement as regards prices on demand in the local iron market, sales being limited and prices very uncertain; reports of a similar kind continue to be received from various points throughout the country. The outlook for the immediate future is far from promising to the manufacturers of crude and finished material, and producers, generally, are more and more disposed to regard the closing months of the year as not likely to show any very important change either in the character of the demand or in the prices realized. The market for pig iron presents no new features, the excess of the offerings over the requirements of consumers keeping prices low and uncertain.

Notwithstanding that iron can be purchased at rates extremely favorable to buyers, sales continue of small size for current wants, the trade showing

little confidence in the future. Pittsburg furnacemen refuse to accept present prices for Bessemer and forge irons, and their stocks have been withdrawn for the present; there is, however, sufficient metal offering to meet all current demands. The inquiry in every department is small.

I have just learned of sales of 2,000 tons steel billets, deliverable the balance of this year at maker's mill, for $17.60 cash. Negotiations are pending for more on the same terms. This price for billets is below anything ever heard of heretofore.

Coke Smelted Lake and Native Ore.

Tons.	Cash.
1,000 Bessemer, Oct., Nov., Dec.	$11.80
1,000 Bessemer, Nov.	11.70
1,000 Bessemer, Oct., Nov.	12.00
500 Bessemer, Oct.	11.50
500 Bessemer, next 3 mos.	11.80
500 Gray Forge	10.50
500 Gray Forge	10.65
300 Gray Forge	10.60
150 No. 1 Foundry	13.25
150 No. 2 Foundry	12.25
150 No. 1 Silvery	15.50
50 No. 3 Foundry	11 85
50 No. 2 Foundry	12.00
50 No. 2 Foundry	12.10
50 No. 2 Silvery	13.50

Blooms, Billets and Slabs.

1,500 B. & S., Oct., Nov., Dec., at mill	18.60
1,000 Billets, Oct., Nov. Dec., at mill	18.75
700 Billets, Oct., Nov., at mill	18.60
500 Billets, prompt, at mill	19.00
500 Billets, Oct., Nov., at mill	18.50

Muck Bar.

275 Neutral	21.00
200 Neutral	21.00

Skelp Iron.

1,000 Narrow Grooved, 1·37½ 4 m.	
600 Sheared 1·50 4 m.	
400 Wide Grooved, 1·37½ 4 m.	

Skelp Steel.

400 Wide Grooved, 1·32½ 4 m.	

Sheet Bars. Cash.

500 Tons, at mill	25.00

Scrap Iron.

375 No. 1 R. R. W. Scrap, net	10.00

Blooms, Billets and Bar Ends.

550 At mills, Oct.	12.00

Old Iron Rails.

100 Delivered at Columbus	17.00

Philadelphia. Oct. 12.

Pig Iron.—The iron market is in a bad condition all through. Pig iron is hard to sell at any price. Founders have made no move to order anything more than small lots, notwithstanding the shadings made last week by two or three large producers. Best No. 1 is still held at $14.50, but most of the iron sold is at $14.25. Forge brings $12.25, and very little has sold above that this week. Mill owners refuse to consider propositions for winter deliveries, and makers are very much discouraged.

Muck Bars.—Manufacturers are trying more earnestly to secure a little business for next month, intending to resume if possible.

Steel Billets.—A further decline has taken place under pressure from the West, but at the last concession no business of importance has been done. It is impossible to predict the outcome, as buyers will not make purchases, excepting for immediate necessities. Small lots have sold at $21.

Merchant Iron.—Storekeepers are selling more iron than for several weeks, but the aggregate of business is insignificant as compared to producing capacity. Mill orders are very scarce. There are a good many inquiries, but on investigation it appears that the parties inquiring are simply trying to find out for curiosity the limit of prices.

Nails.—A further concession has been made by some factory managers on nails, but the best open quotation is $1.25 at tidewater, in small lots. Bona-fide buyers can secure nails in large lots at factory at about what it costs to make them.

Skelp Iron.—Small orders for skelp are coming in, and millowners expect to keep going at 1·50.

Wrought Iron Pipe.—Business in this section of the State is very scattering. Reports reaches us, however, of good sized contracts for pipes being placed in other markets. A rumor has started to the effect that there will be large orders for pipe on the market in a few days.

Sheet Iron.—Manufacturers have shown a disposition to furnish iron at about cost, provided buyers will place large orders that will keep their mills running for a month or two. There seems to be a desire among manufacturers to keep their mills going, and they will make any possible sacrifice to run, hoping that before the large contracts they desire are filled, business will have returned to its usual proportions, and small orders will enable them to make up. This is the reason given for the present slashing of card rates for large orders.

Merchant Steel.—Both tire and spring steel have been bought and contracted for in larger quantities than for several weeks.

Plate and Tank.—Representatives of plate mills talk in a more confident tone this week regarding business for the future; they think there will be orders for several thousand tons in the market, and are expecting to have mills filled up within 30 days. This anticipation is hardly warranted by visible probabilities, but all plate mill products now are $2 or $3 per ton lower than they have been for years, and this is given as the reason why certain large concerns will be very heavy buyers at an early day.

Structural Material.—The Phœnix Bridge Company secured an order for 1,500 tons for a bridge across the Harlem River. A Pittsburg concern also secured an order for the same operation. Flange quotations are 2c.; beams, tees and channels, 1·80.c There is a steadier run of orders for shapes than for some weeks, and the mill agents think that now there will be a gradual improvement; in fact they say there must be.

Steel Rails.—The market for steel rails can hardly be reported, owing to the meeting this week in New York. The fact is known that there is a large amount of business to be placed so soon as makers will accept $28; at least this statement comes from parties representing buyers.

Old Rails.—Old rails have dropped to $15 at tidewater. No one is able to report any transactions.

METAL MARKET.

NEW YORK, Friday Evening, Oct. 13, 1893.

Prices of Silver per Ounce Troy.

Oct.	St. Ex.	London Pence.	N.Y. Cts.	Value of sil. in $1.	Oct.	St. Ex.	London Pence.	N. Y. Cts.	Value of sil. in $1.
7	4·84¼	33⅞	73¼	·567	11	4·84¾	33⅞	73¼	·567
9	4·84	33⅞	73¼	·567	12	4·84¾	33¾	73⅛	·566
10	4·84⅛	33⅛	73⅜	·568	13	4·84¾	33⅝	72¾	·563

The prospect of a failure of the silver repeal bill does not reanimate the price of bullion. London has been so well supplied with forward silver owing to the short purchases of our Government and the large amounts accessible for shipment that any material advance does not seem probable in the near future.

The United States Assay Office at New York reports the total receipts of silver for the week to be 260,000 oz.

The Treasury Department on October 12th purchased 141,000 oz. silver at its counter-offer of 73·65c. per ounce. The purchases so far this month have been 636,000 oz. in all.

Gold and Silver Exports and Imports at New York, Week Ending October 7th, 1893, and for Years from January 1st, 1893, 1892.

	Gold.		Silver.		Excess of Ex. or Imp.
	Exports.	Imports.	Exports.	Imports.	
Week	$269,898	$56,189	$251,378	$1,233	E $463,854
1893...	70,077,341	57,775,352	24,510,845	2,931,368	E 33,880,966
1892...	58,777,248	7,024,287	16,813,744	2,116,821	E 66,449,884

The gold exported was chiefly in transit to the West Indies; the silver went to London. The imports of both gold and silver were from South America.

During the five days ending October 13th the exports and imports have been as follows: Exports, gold, $29,800; silver, $234,100. Imports, gold, $64,984; silver, $45,183. Of the silver exported, $14,800 was Mexican bullion and $11,000 was Chilean coin; all the rest was American dollars.

NOTES OF THE WEEK.

Early in the week we had hopes of communicating the repeal of the Sherman silver purchase act to our readers in this issue. The repeal, however, has not yet taken place.

The debate on the bill has clearly proved two things: First, that there is no power to put a stop to roll-calling whenever any senator asks for it, and secondly, that the Senate has no power to compel a senator to answer to his name when called even though he be seated in his chair in full view of the Senate.

By means of this decision the silver men are enabled to insist upon the continuous attendance of the members in favor of repeal, while they themselves can seek rest.

The silver senators seem determined not only to destroy the permanent future of silver in their effort to force the country to buy their present product, but they are insuring a radical change in the Senate, which will, it is hoped, prevent the possibility of a few obstructionists forcing a purchase of their assent to the transaction of business by the Senate.

The course of the few senators interested in the silver market in seeking to promote their own pecuniary interests at the expense of the interests of nearly the whole country, is certainly destroying the sympathy and goodwill of a great number of citizens, whose co-operation is needed to secure any rational and permanent solution of the silver question in the interest of the white metal. A continuation of this selfish course will so disgust every one that silver will be deprived of friends. Its cause has unquestionably been greatly injured already; let us hope its real friends will be able to stop the pernicious tactics now followod by the obstructionists of the Senate.

The enormous movement of gold between Europe and this country during the present year emphasizes the comment of Mr. Sherer, manager of the New York Clearing House, upon the plan for an International Monetary Clearing House, as proposed in the "Engineering and Mining Journal." During the year $70,080,641 in gold coin and bullion have been shipped to Europe, and $57,775,352 have been received from there; in other words a grand total of $127,855,991, weighing, roughly speaking, 255 tons has made a voyage of 3,000 miles—and for what? To settle a balance of $12,305,289 at the present writing and which may be reduced to nothing before the year closes. No accurate statistics of the loss by abrasion, by shipwreck, by cost of handling, insurance, etc., necessitated by this movement are available, but they are certainly a very important amount. This seems approximating ¼ of 1%, which amounts on the year's movement to $322,000.

Mr. Sherer, in speaking of the plan for Universal Bimetallism, said: I can see many advantages that would follow its adoption. Besides the settlement of the silver question, which is by far the most important, the adoption of an international money, which the plan involves, would obviate the frightful waste incident upon the shipping of gold coin, as well as the waste of time and money in its frequent recoinage of foreign coin.

The Treasury statement for the 10 days ending October 10th shows that the customs receipts at New York were $2,480,392, as against $2,964,302 for the corresponding period last year. Of the total this year 40% was paid in gold, a smaller proportion than for some weeks past.

The New York Clearing House on Friday canceled $1,080,000 loan certificates, leaving $12,115,000 outstanding.

The latest weekly statement of the New York banks shows increases of $4,503,225 in surplus reserve; $847,400 in loans; $3,586,500 in specie: $3,225,600 in legal tenders; $9,215,500 in deposits; $544,400 in circulation. The increase in deposits is notable, but has not been followed by any corresponding expansion in loans.

Domestic and Foreign Coins.

The following are the latest market quotations fo the leading foreign coins:

	Bid.	Asked.
Mexican dollars	$.58¼	$.59¼
Peruvian soles and Chilian pesos	.53½	.54½
Victoria sovereigns	4.84	4.88
Twenty francs	3.86	3.89
Twenty marks	4.74	4.78
Spanish 25 pesetas	4.75	4.80

The Director of the Mint has announced a reduction in the authorized value of foreign silver coins as follows, the new values being given in comparison with those ordered July 1st last.

	Oct. 1st.	July 1st.
Bolviano, Bolivia	$0.531	$0.604
Peso, Central America	0.531	0.604
Tael of Shanghai, China	0.784	0.892
Tael of Haikwan, China	0.874	0.994
Peso, Colombia	0.531	0.604
Scure, Ecuador	0.531	0.604
Rupee, India	0.252	0.287
Yen, Japan	0.573	0.651
Dollar, Mexico	0.577	0.656
Sol, Peru	0.531	0 604
Ruble, Russia	0.425	0.483
Mahbub, Tripoli	0.479	0.545

The general reduction in values is a fraction over 12%.

Other Metals.

The general situation has been growing gloomier from day to day, for while the prompt and decisive action of the House had an effect, and a good one, too, that has now passed away, and the Senate's dilatoriness is the cause of everybody's moving slowly and extremely cautiously. This feeling, has, of course, an influence on the markets on which we have to report as follows:

Copper.—Business with domestic manufacturers is still very quiet, and they are placing orders only for such small quantities as they must have. While prices have not exactly suffered in consequence, they are rather easy, their maintenance being due, principally, to the fact that the demand from abroad continues good, although not much business has been done since last we reported, and, in addition, the heavy exports which continue to be made are from current production, making it unnecessary for the producers to force sales at home. We quote Lake at 9¾; Electrolytic at 9¼, and Casting at 9⅛, with Arizona pig held firmly at far above the market value, viz., at 9c.

In the foreign market G. M. B's have fluctuated from day to day, reaching £41 15s. for spot and £42 2s. 6d. for three months prompt on the 12th and closing at £41 15s. for spot and £42 2s. 6d. for three months prompt, with refined and manufactured quoted: English tough, £44@£44 10s.; best selected, £44 10s.@£45; strong sheets, £51 10s.@£52; India sheets, £50 10s.@£51; yellow metal sheets, 4½d.

The exports of copper from the port of New York during the past week were as follows:

Copper:				
Liverpool—Bovic	90 casks	11,250	lbs.	$11,600
" "	152 cakes	25,130	"	2,500
" "	422 pigs	100,325	"	10,000
" Germanic	257 bars	22,375	"	2,069
" Runic	90 casks	112,000	"	11,200
London—France	18 casks	23,040	"	2,500
Glasgow—Ethiopia	18 casks	22,500	"	2,300
Swansea—Exeter City	651 pigs	100,215	"	9,225
" Brooklyn City	1,116 bars	334,663	"	30,828
" Jersey City	929 pigs	140,311	"	11,907
" " "	675 bars	225,745	"	20,317
Antwerp—Othello	54 casks	67,500	"	7,500
Genoa—Pocasset	2 casks	2,500	"	230
Bordeaux—Panama	804 bars	112,070	"	11,510
Rotterdam—Dubbledam	902 bars.	125,322	"	32,177
" "	77 bbls.	96,250	"	
" "	494 c'kes	100,200	"	
" "	422 bars	144,894	"	4,150
" Amsterdam, ad.	1,268 bars	175,386	"	17,638
" Scheidam	1,336 bars	109,495	"	10,000
Hamburg—Gothia	102 cakes	45,044	"	4,300
" Rugia	36 casks	45,000	"	5,000
" "	285 plates	24,590	"	2,400
" "	30 cakes	44,791	"	4,500
Copper matte:				
Liverpool—Bovic	6,409 bags	756,888	"	33,810
" Germanic	1,907 "	211,196	"	9,000
Swansea—Mohican	94 casks	133,986	"	6,000
" "	2,270 bags	236,237	"	9,500

The exports of copper from Baltimore for the week ending October 12th were as follows:

Copper:				
Liverpool—Francisca	448 bbls.	448,000 lbs.		$44,800
" "	329 bars	66,464 "		6,646
" "	256 cakes	45,433 "		4,345
Hamburg—Galicia	579 "	184,785 "		18,479
" "	112 bbls.	112,000 "		11,200
" "	3,736 ingots	67,200 "		6,720
Copper matte:				
Liverpool—Rossmore.....	6,770 sacks	729,831 "		36,492

Messrs. James & Shakespeare's report gives the English stocks on September 30th as follows: Available for delivery as G. M. Bs., 35,273 tons; in furnace material for smelters' use, 3,833 tons; total, 39,106 tons. The French stock at the same date was 4,598 tons. Actual English imports for the nine months ending September 30th were: American, 29,791; Chilean, 14,353; other sorts, 32,294; total, 76,438 tons, against 78,753 tons for the corresponding period in 1892.

Tin.—The market here weakened considerably because of the offering of a number of parcels for which there were no takers at the time, but now the stronger interests which have done the buying right along have again purchased, the market responding well, this being due in part to the fact that present stocks will not last longer than until the end of November, or possibly the middle of December, and that before they are exhausted importations will have to be made, and the market here rise to the parity of those abroad, plus the 4c. duty. Meanwhile, the condition of affairs at home will influence holders of all sorts of merchandise to convert such into cash as the opportunity offers, and this must stand in the way of our market reaching the parity of that in London, while we have some stocks on hand on which no duty was paid. We close at 20·75 for spot and October, and at 20·80 for November.

The foreign market, which we omitted to quote last week, is higher, and has been so through the latter part of the week, than in the beginning. The opening was at £78 5s. for spot and £78 12s. 6d. for three months, while the close is £78 10s. and £78 17s. 6d. respectively.

The returns of the British Board of Trade show for the eight months ending August 31st the following: Imports of foreign tin, 21,477 tons; exports of foreign tin, 14,617 tons; exports of English tin, 4,410 tons; exports of tin plates, 276,570 tons. The increase in foreign imports of tin over 1892 was 2,260 tons, or 11·8%.

Receipts of Banca and Billiton tin in Holland for the nine months ending September 30th were 6,160 tons, a decrease from last year of 1,933 tons, or 23·8%.

Lead has been the metal to suffer most in price, having receded from 3·65 at the close of last week to 3·45 at the close of this, there being free sellers over even at this low figure. Consumption is quite steady, but the anxiety of refiners to market their metal, apparently because of a fear of lower prices in the near future, is so evident that values have, we almost feel inclined to say, declined unduly. It is true the prospects for production have become brighter within the last fortnight in the Cœur d'Alene district as well as the others generally, but there are no stocks anywhere in the country, and, with an average consumption, none ought to be accumulated.

The foreign market has become a trifle lower having to be quoted as £9 10s.@£9 11s. 3d. for Spanish, and at 2s. 6d. more for English lead.

St. Louis Lead Market.—The John Wahl Commission Company telegraph us as follows: Lead weak and demoralized. Last sales are at 3·25c., and at this figure there are more sellers than buyers at the close.

Spelter is easy at 3·65 New York, with very little doing, as galvanizers, in particular, are buying only to fill hand to mouth needs, having to bear in mind that as soon as possible there are large quantities of metal which they should have received long ago, on old contracts, but which has been held back ever since the beginning of the trouble in the summer.

In London good ordinaries are quoted at £16 17s. 6d. and specials at about £17.

Antimony we have still to quote at 10¼c. for Cookson's, 10c. for L.X., and 9¾c. for Hallett's.

Quicksilver.—This market is absolutely without change. It continues quiet, with prices as last reported. We quote $38 for New York and £6 9s.@£6 10s. for London.

CHEMICALS AND MINERALS.

NEW YORK, Friday Evening, Oct. 13.

Heavy Chemicals.—During the week under review nothing has occurred in the heavy chemical market to necessitate any change in our last week's report. The same conditions prevail. The demand has been very light for most of the chemicals and there has been no change in prices. Caustic soda continues firm; late advices from England would indicate that the great coal strike is nearing an end. Carbonated soda ash and alkali are quiet. Glass works are not starting up as generally as was hoped, and the prospects for their doing so shortly are not very bright.

Quotations are nominally as follows: Caustic soda, 60%, 3·05@3·20c.; 70%, 2·80@3c.; 74%, 2·82½@3·05c.; 76%, 3@3·10c. Carbonated soda ash, 48%, 1·15@1·25c.; 58%, 1·10@1·20c. Alkali, 48%, $1.10@$1.20; 58%, $1.05@$1.15, according to package. Sal soda, English, 1.10c.; American, 1@1·10c. Bleaching powder, 2·25@2·50c.

Acids.—Manufacturers report an improved demand for acids, but there is no great rush, so far as new business is concerned, A better feeling prevails, however. Prices are without any noteworthy change and we quote acids, per 100 lbs. in New York and vicinity, in lots of 50 carboys or more: Acetic, in barrels, $1.87½; in carboys, $2.25; muriatic, 18°, 90c.@$1.10; 20°, $1@$1.25; 22°, $1.10@$1.35; nitric, 40°, $4; 42°, $4.50@$4.75; sulphuric, 75c.@$1. Mixed acids, according to mixture, oxalic, $6.30@$6.50. Blue vitriol is quoted all the way from $3.50 to $3.75; glycerine for nitroglycerine, 11½@12½c., according to quality and quantity.

Brimstone.—This market continues quiet. Prices slightly lower than last week, and quotations are now: Shipments, best unmixed seconds, $17.75; thirds, $16.75. On the spot, best unmixed seconds, $18.75. There are no thirds available here.

Fertilizing Chemicals.—The fertilizing market has continued in the position which we outlined in our last issue. The demand has kept up and prices are fairly firm, especially in the case of the ammoniates, of which stocks are light. There has been no change in prices to speak of and we quote this week: Sulphate of ammonia, on the spot, gas liquor, $3.65@$3.70; bone, $3.30@$3.35. Dried blood, $2.70@$2.80 per unit for high grade, and $2.40@$2.50 for low grade; azotine, $2.70@$2.75. Concentrated phosphate (30% available phosphoric acid), 75c. per unit. Acid phosphate, 13% to 15%, av. P_2O_5 60c. per unit at seller's works in bulk. Dissolved boneblack, 17% to 18%, P_2O_5 92@95c. per unit. Acidulated fish scrap, $15@$16, and dried scrap, $25@$25.50 f. o. b. fish factory; wet scrap, $15 f. o. b. fish factory. Tankage, high grade, $26@$27; low grade, $22@$23. Bone tankage, $23@$24; bone meal, $24@$25.50.

The price of double manure salts as fixed by the syndicate is as follows: New York and Boston, $1.12; Philadelphia, $1.14½; Charleston and Savannah, $1.17 cwt., basis 48@50%, in 50-ton lots on foreign weights and analyses. Sulphate of potash, 90%-96%, basis 90%: New York and Boston, $2.07; Philadelphia, $2.09½; Charleston and Savannah, $2.127, sulphate of potash, 96-99%, basis 90%, is 4% higher.

Phosphates.—Quotations f. o. b. Charleston are $5@$5.50. Freights are $2.25.

Muriate of Potash.—No new business is reported in this market. The prices fixed by the syndicate for 1893 are as follows: New York or Boston, $1.78; Philadelphia, $1.80½; Southern ports, $1.83.

Kainit.—Quotations for shipments are as follows: New York, Philadelphia and Boston, $9 for foreign invoice weight and test, and $9.25 for actual weight; Charleston, Savannah and Wilmington, $9.75 for invoice weight and test, and $10 for actual weight.

Nitrate of Soda.—All the vessels which had been discharging have finished, and all the nitrate here is now in store. Owing to this fact that no arrivals of any consequence are expected before December the price of nitrate has advanced and it is now $1.90.

Liverpool. Oct. 4.

(Special Correspondence of Joseph P. Brunner & Co.)

The position with regard to the coal strike is still very unsatisfactory, as although some colliers are going back at the old rate of wages, in the majority of cases the masters and men are still at loggerheads. As regards chemicals generally the market is dull.

Soda ash is slow of sale. For Leblanc makes quotations are unreliable, varying according to quantity, make, market, etc. Quotations are quite nominal and may be quoted about as follows: Caustic ash, 48%, £4 10s.@£5 per ton; 57%, 58%, £5 10s.@£5 15s. per ton. Carbonate ash, 48%, £4 10s.@£5 per ton; 58%, £5 5s.@£5 15s. per ton, all net cash.

Ammonia ash, 58%, very quiet at about £4@£4 5s. per ton, less 2½% for prompt delivery.

Soda crystals are scarce and firmly held at £3 5s. @£3 7s. 6d. per ton, less 5%.

Caustic Soda.—The position as regards this article is about unchanged, as it is almost unobtainable for the present. The nominal spot figures are about £10 5s. for 60% and £11 5s. for 70%, net cash. Of course there is very little doing at these figures, but if buyers want anything for immediate delivery they have got to pay almost whatever sellers like to ask.

Bleaching powder is very slow of sale, and although makers' quotations are £9@£9 5s. per ton, net cash for hardwood packages, second hand lots, are obtainable at considerably less money.

Chlorate of potash has declined, and 8¼d. is about nearest quotation for prompt delivery. For October we quote 8⅛@8¼d. and for October-December 8d.@8⅛d. per lb., all less 5%.

Bicarb. soda continues in good request, and steady at £7 per ton, less 2½% for 1 cwt. kegs, with usual lowances for larger packages.

Sulphate of ammonia continues to decline, and present values are about £13 5s.@£13 10s. per ton, less 2½% for good gray, 24@25% in double bags f.o.b. here; but quotations are quite nominal.

Nitrate of soda is quiet at £9 10s. per ton, less 2½%, for doube bags, f.o.b. here.

Carb. Ammonia.—Lump 3½d. per lb.; powdered, 3¾d. per lb. less 2½%.

MINING STOCKS.

[For complete quotations of shares listed in New York, Boston, San Francisco, Aspen, Colo.; Baltimore, Pittsburg, St. Louis, London and Paris, see pages 412, 413 and 414.]

NEW YORK, Friday Evening, Oct. 13.

There has been more activity in the stock market this week than for some time past, and to-day, instead of the usual two or three faithful and punctual old timers there was quite a crowd of brokers about the rostrum at the last call.

The reason for all this is to be found in the reports which are referred to in our San Francisco letter.

Last Wednesday some activity was displayed in the mining market here, but since that time the old time dullness has returned. The Comstocks were in better demand, owing to the reports about California & Virginia and prices advanced somewhat. Best & Belcher opened at 55c. and closed at 80c., with sales of 220 shares. There was a sale of 100 shares of Chollar at 35c. Comstock Tunnel shows transactions of 6,580 shares at 6@8c.

Elsewhere in this issue will be found an account of the annual meeting of the Comstock Tunnel Company, and an abstract of the annual report. Mexican was traded in to the extent of only 150 shares at 70c. Consolidated California & Virginia advanced from $1.65 to $2.60. There was a fair inquiry for the stock, but actual sales, as officially reported, amounted to only 210 shares. Ophir opened at 85c.; advanced to $1.30, and closed at $1.15, with total sales of 300 shares. Other sales of Comstock stocks were as follows: 100 shares of Gould & Curry at 30c.; 200 shares of Hale & Norcross at 45@55c.; 200 shares of Sierra Nevada at 50@60c.; 150 shares of Yellow Jacket at 55c.; 100 shares Union Consolidated at 40c., and 200 shares of Utah at 15c.

Of the California stocks Brunswick Consolidated was the most active and this week shows sales of 2,800 shares at 4@6c. There was a sale of 100 shares of Bodie Consolidated at 20c.

Of the Colorado stocks Leadville Consolidated was in fair demand; total transactions for the week aggregate 2,300 shares at 12@13c. Lacrosse continues to be traded in, and this week shows sales of 1,400 shares at 4@6c.

The Victor Gold Mining Company, of Cripple Creek, Colo., has declared its regular monthly dividend (No. 8) of five cents per share ($10,000), and also an extra dividend of 2½c. per share ($5,000), both payable at the office of H. R. Lounsbery, 57 Broadway, New York City, on October 16th; to stockholders of record, October 7th. Transfer books close on the latter date, and will reopen on the 17th inst. The total dividends paid by this company to date amount to $90,000.

At the annual meeting of the Horn Silver Mining Company, which was held at Salt Lake City, Utah, on the 3d inst. the following board of directors was elected: Allan C. Washington, John Sharp, Jr., Bache McE. Whitlock, Theodore B. Moore, F. W. Jennings, B. T. Farnsworth and Ambrose I. Harrison, the latter being elected in place of Andrew R. Culver.

NOTES OF THE WEEK.

The monthly financial statements of the mining companies were filed in their offices to-day. The following companies report having had cash on hand September 30th, 1893, with the expenses for that month unpaid: Andes, $8,353; Alpha Consolidated, $4,424; Belcher, $2,521; Bullion, $13,106; Best & Belcher, $6,115; Consolidated California and Virginia, $56,985 in cash and unsold bullion valued at $14,443; Consolidated Imperial, $1,463; Challenge Consolidated, $339; Caledonia, $8,401; Consolidated New York, $333; Chollar, $2,921; Crown Point, $2,610; Confidence, $1,500; Exchequer, $679; Gould & Curry, $390; Hale & Norcross, $11,203; Julia Consolidated, $426; Justice, $1,609; Mexican, $18,101; Nevada Queen, $562; Ophir, $17,012; Savage, $7,646; Segregated Belcher, $41; Sierra Nevada, $19,197; Silver Hill, $85; Union Consolidated, $5,014.

The following mining companies report having had an indebtedness September 30th, 1893, with the expenses for that month unpaid: Alta, $11,123; Commonwealth, $25,361; Grand Prize, $524; Kentuck, $2,696; Lady Washington, $1,842; Occidental Consolidated, $7,007 due on company's bank, less $237 cash on hand; Overman, bills payable of $5,900, less $547 cash on hand, and a balance of $5,118 to be collected in the pending assessment; Potosi, $20,046; Utah Consolidated, $1,119.

The following Bodie mining companies report having had cash on hand on September 30th, with expenses for that month unpaid: Bodie Consolidated, $8,750; Mono, $4,713; Syndicate, $1,339. Bulwer Consolidated had an indebtedness of $3,116.

Boston. Oct. 12.

(From our Special Correspondent.)

The feature of the market the past week, aside from the extreme dullness, is the decline in Tamarack Copper Company from $140 to $125, based upon the expectation of reduced dividends for this and the coming year. It is reported that the company, in view of the large expenditures now going on at the mine in sinking shafts Nos. 3 and 4, and which will not be productive for some time to come, will need a great deal of money, and deem it economy to apply a portion of the earnings for that purpose, instead of running in debt. It is expected that by the middle of next summer these shafts will reach the lode and the mine will be fully equipped for full production. There has been a good deal of stock put upon the market and very few orders to purchase it, hence the decline as stated. Calumet & Hecla has sympathized with the decline in Tamarack, and the stock on very light transactions dropped from $280 to $272½.

Quincy advanced from $105 to $108 on small sales. The company is expected to make a very favorable report for the calander year 1893, notwithstanding

the low price of copper. It is said that the company has sold copper for export at prices 1@1¼c. per pound above present market price, with deliveries running well into the coming year.

A very light business was done in Osceola at prices ranging from $25 to $26½, about the same as last week.

There was very little done in Franklin and Kearsarge. The former sold at $10¼ to $10½ and the latter at $6½. Tamarack, Jr., sold at $15, a decline of $¼ from last week.

The Montana stocks make a poor showing this week. About 600 shares of Boston & Montana were sold at from $21½ to $22⅜, which is a gain over last week of nearly $1 per share. Butte & Boston sold from $7¼ to $7½ on light transactions, which is the same as last week. The balance of the list was neglected.

3 P. M.—There was a decidedly better feeling on copper after the noon hour, and Tamarack advanced to $134, a gain of $9 over morning sales; while Tamarack, Jr., sold up to $17½, reacting to $17. At this writing we are unable to learn the cause for the advance. Boston & Montana sold at $22½, and Butte & Boston at $7½.

San Francisco. Oct. 6.

(From our Special Correspondent.)

The mining stock market continues in a state of actual stagnation. As business generally is showing signs of recovery from the recent financial trouble, it might be expected that mining stocks also would begin to move freely. The reason ascribed for the present state of the market is the uncertainty as to the wages question on the Comstock. Some idea of the absolute indifference with which the public regard mining stocks may be gained from the fact that more than 150,000 shares have been bought in by the several Comstock companies for delinquent assessments. The sales made in the San Francisco Board during the current year, as compared with corresponding periods in last year, are instructive. They have been as follows:

	1892.	1893.
January	434,415	265,760
February	371,870	203,245
March	293,690	240,730
April	285,580	264,210
May	288,590	434,625
June	261,075	371,615
July	208,52[illegible]	176,210
August	239,70[illegible]	127,600
September	612,99[illegible]	94,985
Total	2,995,995	2,179,190

The total sales made last month are less than in any month during the last eighteen years. Indeed, on one day a week ago not a share of stock changed hands.

Now hopes are being built upon the probability of an ore body in the Consolidated California & Virginia mine being uncovered by "Jim" Rule, the old time superintendent, who claims to know of such a body, and offers to show it if he is given permission and a reward in the case of his success.

To-day Consolidated, California & Virginia sold to $1.45; Ophir, 80c.; Mexican, 60c.; Sierra Nevada, 40c., and Union Consolidated, 20c.

In the middle group of Comstocks Best & Belcher sold for 40c., Gould & Curry, 20c.; Hale & Norcross, 40c.; Potosi, 25c., and Savage, 25c.

Of the South End and Gold Hill stocks, Alta sold for 10c.; Confidence, 50c.; Crown Point, 15c.; Overman, 12½c.; Occidental, 10c., and Yellow Jacket, 45c.

As might be expected outside stocks were not even quoted, and sales at above prices were unimportant.

SAN FRANCISCO, Oct. 13 (*By Telegraph*).—The opening quotations to-day are as follows: Best & Belcher, 50c.; Bodie, 20c.; Belle Isle, 5c.; Bulwer, 10c.; Challar, 20c.; Gould & Curry, 25c.; Hale & Norcross, 40c.; Mexican, 60c.; North Belle Isle, 10c.; Ophir, 85c.; Savage, 50c.; Sierra Nevada, 45c.; Union Consolidated, 25c.; Yellow Jacket, 50c.

London. Oct. 3.

(From our Special Correspondent.)

During the last ten days the most noticeable feature on the London Mining Market has been an extraordinary slump in all South African shares, both gold and diamond, quite out of all reason and unconnected with the intrinsic values of the shares.

During the slump in South Africans the American and miscellaneous market enjoyed rather more attention than it has been accustomed to lately, but after the stoppage of the slump and the slight recovery of South Africans the American market became depressed again and many of the increases in price fell off again to some extent. The best feature of the American market has been the great recovery in Richmond Consolidated on the publication of the report for the past year's working and prospects for the future, which was given in our columns last week. A month ago the shares were sold at about 5s. each, and the expectation was that the company would cease operations entirely and voluntarily wind up. The report, however, shows that the directors have a new property in view and that they will shortly start work on it and pretty much abandon the old Richmond mine. The price is now 15s. and there would be more purchases if sellers could be found. Another mine that has been improving lately is New Guston, whose shares continue to rise here with the more hopeful reports; the volume of transaction is very small, however, and very little influences a change in quotations. The mystery about the rise in Golden Gates commented on in last report has been explained. It appears that the inner circle obtained news that on an adjoining claim, the Banner, a fairly rich strike of gold had been made, and they worked this news for all and more than all it was worth. However, this spurt soon ended and the shares are once more bobbing up and down again each day in the usual fashion. There have been some fairly brisk dealings in Jay Hawks and the increased inquiries have sent the price up from 6s. to 7s. 6d. Elkhorns and De Lamars have fluctuated a little, but close at the same price as a fortnight ago. Poorman Consolidated have fallen a shilling to 3@4s. Sierra Buttes have been marked down a shilling.

Low priced shares have received a good deal of attention. Of these Holcomb Valleys are the most sought for, seeing that the prospects are hopeful. The last cable message received here states that the top gravel gives 50c. of gold per cubic yard with the Bucyrus shovel and amalgamator.

DIVIDENDS.

Captis Mining Company paid dividend No. 4 of 10 cents per share at the office of the company, Room 3, No. 314 Montgomery street, San Francisco, Cal., October 12th, 1893.

Church Gold Mining Company paid dividend No. 3 of five cents per share at the office of the company, Room 4, Nevada Block, No. 309 Montgomery street, San Francisco, Cal., October 6th, 1893.

MEETINGS.

Alabama Mineral Land Company, at the office of the company in New York, October 16th, at 12 o'clock noon.

Teresa Mining Company, at the office of the company, Room 68, Flood Building, San Francisco, Cal., October 20th at 8 P. M.

White Chief Mining Company, at the office of the company, No. 309 Mining Exchange Building, Denver, Colo., November 7th, at 2 p. m.

CURRENT PRICES.

These quotations are for wholesale lots in New York unless otherwise specified.

Acid—Acetic, chem. pure .17@.19
Commercial, in bbls. and cbys. .01¾@.02
Carbonic, liquefied, ℔ lb. .18@.25
Chromic, chem. pure, ℔ lb 1.00
for batteries .40
Hydrobromic, dilute, U. S. P. .25@.30
Hydrocyanic, U. S. P. .45@.50
Hydrofluoric .20@.30
Alcohol—95%, ℔ gall. $2.30@$2.40
Absolute $3.80
Ammoniated $2.80
Alum—Lump, ℔ cwt. $1.75@$1.85
Ground, ℔ cwt. $1.85@$1.90
Powdered, ℔ lb. .04½@.05
Lump ℔ ton, Liverpool £5
Aluminum Chloride—Pure, ℔ lb. $1.25
Amalgamating solution, ℔ lb. .60
Sulphate, ℔ cwt. $1.90@$2.50
Ammonia—Sal., in bbl. lots, ℔ lb. .07½@.08
Carbonate, ℔ lb., English and German, .07½@.08
Muriate, white, in bbls., ℔ lb. .08½
Aqua Ammonia—(in cbys) 8° ℔ lb. .03@.04
20°, ℔ lb. .04@.05
26°, ℔ lb. .04¾@.05
Antimony—Oxymur, ℔ lb. .04@.06
Regulus, ℔ lb. .10@.11¼
Argols—Red, powdered, ℔ lb. .15
Arsenic—White, powdered ℔ lb. .03@.03¾
Red ℔ lb. .06@.07
Yellow .08@.09
White at Plymouth, ℔ ton £12 2 6
Asbestos—Canadian, ℔ ton $50@$300
Italian, ℔ ton, c. i. f. L'pool £18@£60
Ashes—Pot, 1st sorts, ℔ lb. 4.75@5
Pearl .05¾@.06¼
Asphaltum—
Prime Cuban, ℔ lb. .04@.05
Hard Cuban, ℔ ton $28.00@$30.00
Trinidad, refined, ℔ ton $30.00@$35.00
Egyptian and Syrian, ℔ lb. .05@.07½
Californian, at mine, ℔ ton $12.00@$26.00
at San Francisco, ℔ ton $15.00@$29.00
Barium—Carbonate, pure, ℔ lb. .45
Carbonate, commercial, ℔ lb. .05@.10
Chlorate, crystal, ℔ lb. .75
Chloride, commercial, ℔ lb. .05@.10
pure, ℔ lb. .16
Iodide, ℔ oz. .40
Nitrate, ℔ lb. .06½@.07
Sulph., Am. prime white, ℔ ton $17.50@$19
Sulph., foreign, floated, ℔ ton $21@$24
Sulph., off color, ℔ ton $11.50@$15.06
Carb., lump, f. o. b. L'pool, ℔ ton £6
No. 1, Casks, Runcorn, " " £4 10 0
No. 2, bags, Runcorn, " " £3 15 0
Bauxite—℔ ton $10.00
Bichromate of Potash—Scotch, ℔ lb. .11@.12
American, ℔ lb. .11@.12
Bichromate of Soda—℔ lb. .09½@.10
Borax—Refined, ℔ lb., in car lots .08@.09
San Francisco .08@.08½
Concentrated, in car lots .07½@.08
Refined, Liverpool ℔ ton £9
Bromine—℔ lb. .25@.35
Cadmium Minion—℔ lb. $2.00
Cadmium Iodide—℔ lb. $5.50
Chalk—℔ ton $1.50@$2.25
Precipitated, ℔ lb. .04@.06
China Clay—English, ℔ ton $13@$18.00
Domestic, ℔ ton $9@$11
Chlorine Water—℔ lb. .10
Chrome Yellow—℔ lb. .10@.25
Chrome Iron Ore—℔ ton, San Francisco $10.00
Chromalum—Pure, ℔ lb. .35@.40
Commercial, ℔ lb. .02½
Cobalt—Oxide, ℔ lb. $1.60@$1.70
Copper—Sulph. English Wks, ton £20@£21
Vitriol (blue), ordinary, ℔ lb. 03¼@.03¾
" extra .04½
Nitrate, ℔ lb. .40
Copperas—Common, ℔ 100 lbs. .85@.95
Best, ℔ 100 lbs. $1.35@$1.50
Liverpool, ℔ ton, in casks £2@£2 10s.
Corundum—Powdered, ℔ lb. .04½@.09
Flour, ℔ lb. .03
Cryolite—Pow., ℔ lb., bbl. lots .07@.08
Emery—Grain, ℔ lb. (℔ kg.) .04½@.05
Flour, ℔ lb. .02½@.04
Epsom Salt—℔ lb. 01@.01½
Feldspar—Ground, ℔ ton $6.00@$10.00
Crude $2.00@$3.00
Fluorspar—Powdrd, No. 1, ℔ ton, $20@$30
Lump, at mine $6@$8
French Chalk—
Fuller's Earth—Lump, ℔ ton. $16@$20
Glauber's Salt—in bbls., ℔ lb. .01@.01¼
Glass—Ground, ℔ lb. .09@.10
Gold—Chloride, pure, crystals, ℔ oz. $12.00
pure, 15 gr., c. v., ℔ doz. $5.40
liquid, 15 gr., g. a. v., ℔ doz. $5.50
Chloride and sodium, ℔ oz. $6.00
15 gr., c. v., ℔ doz. $2.75
Oxide, ℔ oz. $27.25
Gypsum—Calcined, ℔ bbl. $1.25@$1.50
Land Plaster
Iodine—Resublimed, ℔ oz. .30@.33
Iridium—Oxide ℔ lb. $90
Iron—Nitrate, 40°, ℔ lb. .01@.01½
47°, ℔ lb. .02@.02½
Kaolin—*See China Clay.*
Kieserite—℔ ton $9@$10
Lead—Red, American, ℔ lb. .06¾@.07½
White, American, in oil, ℔ lb. .06½@.07½
White, English, ℔ lb., in oil .08½@.08¾
Acetate, or sugar of, white .06@.06½
Granulated
Nitrate .09@.12
Lime Acetate—Am. Brown .90@.95
" Gray $1.75@$1.87½
Litharge—Powdered, ℔ lb. .05½@.07½
English flake, ℔ lb. .06@.09½
Magnesite—Crude, ℔ ton of 1,015 kilos $14.75
Calcined, ℔ ton of 2,240 lbs. $22.00
Brick, ℔ ton of 2,240 lbs. $47.50
Manganese—Ore, per unit .23@.28
Oxide, ground, ℔ lb. .02½@.06¼
Mercuric Chloride—(*Corrosive Sublimate*) ℔ lb. .62@.64
Powdered, ℔ lb. 5
Marble Dust—℔ bbl. $1.25@$1.50
Metallic Paint—Brown ℔ ton. $20@$25
Red $20@$25
Mica—In sheets according to size, 1st quality, ℔ lb. .25@$6.00
Mineral Wool—Ordinary slag .01½
Ordinary rock .02½
Ground, ℔ ton
Naphtha—Black
Nitre Cake—℔ ton $10.00
Ochre—Rochelle, ℔ lb. .01¼@01¾
Washed Nat Oxf'rd, Lump, ℔ lb. .06¼@.06¾
Washed Nat Oxf'rd, Powder, ℔ lb. .07@.07½
Golden, ℔ lb. .03@.05
Domestic, ℔ ton $12@$20
Oils, Mineral—
Cylinder, light filtered, ℔ gal. .14@.16
Dark filtered, ℔ gal. .10@.13
Extra cold test, ℔ gal. .20@.24
Dark steam refined, ℔ gal. .07½@.12
Phosphorus—℔ lb. .50@.55
Precip., red, ℔ lb. .80@.85
white, ℔ lb. .85@.90
Platinic Chloride—Dry, ℔ oz. $7
Plumbago—Ceylon, ℔ lb. .04@.06
American, ℔ lb. .05@.07
Potassium—Cyanide, ℔ lb., C. P. 65%, ℔ lb. .52
mining .40
Bromide, domestic, ℔ lb. .28@.32
Chlorate, English, ℔ lb. .18@.18¼
Chlorate, powdered, English, ℔ lb. .18½@.19
Carbonate, ℔ lb., by casks, 82% .04½@.05
Caustic, ℔ lb., pure slick .05½@.06
Iodide, ℔ lb. $2.58@$2.80
Nitrate, refined, ℔ lb. .06@.06
Bichromate, ℔ lb. .10@.11½
Yellow Prussiate, ℔ lb. .21½@.22½
Red Prussiate, ℔ lb. .39@.41
Pumice Stone—Select lumps, ℔ lb. 03½@.15
Original cks., ℔ lb. .01¾@.02
Powdered, pure, ℔ lb. .01½@.01¾
Pyrites—Non-cupreous, p. units. 10@.11
Quartz—Ground, ℔ ton $6.00@$10.00
Rotten Stone, Powdered, ℔ lb. .03¼@.03½
Lump, ℔ lb. .06@.07
Original cks, ℔ lb. .04½@.05½
Rubbing stone, ℔ lb. .03½@.04
Sal Ammoniac—lump, in bbls., ℔ lb. .09½
Salt—Liverpool, ground, ℔ sack .70
Domestic, fine, ℔ ton $7@$7.50
Common, fine, ℔ ton $4.50@$5
Turk's Island, ℔ bush .26@.28
Salt Cake—℔ ton $10.00@$15.00
Saltpeter—Crude, ℔ lb. .03¼@.04
Soapstone—Ground, ℔ ton $6@$8
Block and slab according to size.
Sodium—Prussiate, ℔ lb. .22@.24
Phosphate, ℔ lb. .04@.05
Stannate, ℔ lb. .06@.12
Tungstate, ℔ lb. .30@.35
Hyposulphite, ℔ cwt., in casks $1.70@$1.80
Strontium—Nitrate, ℔ lb. .08½@.09
Sulphur—Roll, ℔ lb. .01½@.02¼
Flour, ℔ lb. .01¾@.02
Sylvinit, 27@35%, S. O. P., per unit, 3.75
Talc—Ground French, ℔ lb. .01¼@.01¾
American No. 1, ℔ lb. .01¾@.01¾
American No. 2 .00
Terra Alba—French, ℔ lb. .65@.80
English, ℔ lb. .65@.80
American, No. 1, ℔ lb. .60@.80
American, No. 2, ℔ lb. .40@.50
Tin—Crystals, in kegs or bbls. .14@.15
feathered or flossed. .20
Muriate, single .07@.12
Double or strong, 54° B. .10@.15
Oxymur, or nitro .19
Vermillion—Imp. English, ℔ lb. .80
Am. quicksilver, bulk .57 @.59
Am. quicksilver, bags .58 @ .60
Chinese .85 @$1.00
Trieste .90 @ .95
American .11½@ .12
Zinc White—Am., Dry, ℔ lb. .04½@ .05
Antwerp, Red Seal, ℔ lb. .06¼@.07
Paris, Red Seal, ℔ lb. .07½@.08
Muriate solution .06
Sulphate crystals, in bbls., ℔ lb. .03@.03¾

THE RARER METALS.

The prices given below are the prices at works in Germany, and are per gramme except where otherwise stated:

Arsenic (metallic), per kilo	$0.25
Barium (ex amalgam)	2.12
" (per electrol.)	7.75
Bismuth (metallic), per kilo	6.25
Cadmium (metallic), "	2.75
Calcium (per electrol.)	5.25
Cerium (pulv.)	2.25
" (fusum in globulis)	5.50
Chromium (fus.)	.40
" (cryst.)	.75
Cobalt (metallic), per kilo	10.00
" (pure), per kilo	40.00
Didymium (pulv.)	5.50
Erbium-Yttrium (oxydat.)	10.00
Gallium (cryst.)	100.00
Germanium (fus.)	37.50
" (pulv.)	35.00
Glucinum (pulv.)	7.00
" (cryst)	10.75
Indium	5.00
Iridium (fusum)	1.25
Lanthanum (pulv.)	6.00
" (per electrol.)	11.00
Lithium (in glob.)	5.00
" (wire)	6.25
Magnesium (bars)	.01½
" (wire)	.02
" (pulv.)	.01¾
Manganese (fusum)	.25
Molybdenum (pulv.)	.12½
Niobium (pulv.)	4.25
Osmium	1.00
Palladium (wire)	1.06
" (pulv.)	1.00
Potassium (metal), per kilo	27.50
Rhodium	1.63
Ruthenium	2.50
Rubidium	6.25
Selenium (cryst.)	.50
" (precipitates)	.62½
Sodium	.00¾
Strontium (per electrol.)	7.25
" (ex amalgam)	3.25
Tantalum	4.75
Tellurium (fusum)	.50
" (precipitates)	.22½
Thallium	.03¾
Titanium	1.13
Tungsten (pure)	.05
Uranium	.00
Vanadium	1.00

NEW YORK MINING STOCK QUOTATIONS.

DIVIDEND-PAYING MINES.

Name and Location of Company.	Oct. 7. H.	Oct. 7. L.	Oct. 9. H.	Oct. 9. L.	Oct. 10. H.	Oct. 10. L.	Oct. 11. H.	Oct. 11. L.	Oct. 12. H.	Oct. 12. L.	Oct. 13. H.	Oct. 13. L.	Sales.
Adams, Colo.													
Alice, Mont.													
Amador, Cal.													
Atlantic, Mich.													
Belcher, Nev.													
Belle Isle, Nev.													
Bodie Cons., Cal.											.20		100
Bos. & Mont., Mont													
Breece, Colo.													
Bulwer, Cal.													
Caledonia, S. Dak.													
Catalpa, Colo.													
Chrysolite, Colo.													
Colorado Central, Colo.													
Commonwealth, Nev.													
Comstock T. bonds, Nev.													
" scrip., Nev.													
Cons. Cal. & Va., Nev.					1.65		2.50						210
Crown Point, Nev.													
Deadwood, Dak.													
Enterprise													
Eureka, Cons., Nev.													
Father de Smet, Dak.													
Freeland, Colo.													
Gould & Curry, Nev.					.30								100
Grand Prize, Nev.													
Hale & Norcross, Nev.					.55	.45							200
Homestake, Dak.													
Horn-Silver, Utah													
Independence, Nev.													
Iron Hill, Dak.													
Iron Silver, Colo.													
Leadville Cons., Colo.					.13	.12					.12		2 300
Little Chief, Colo.													
Martin White, Nev.													
Moulton, Mont.													
Mt. Diablo, Nev.													
Navajo, Nev.													
N. Belle Isle, Nev.													
Ontario, Utah													
Ophir, Nev.			.85						1.30		1.15		300
Overman, Nev.													
Plymouth, Cal.													
Quicksilver, Pref., Cal.													
" Com., Cal.													
Quincy, Mich.													
Robinson Cons., Colo.													
Savage, Nev.													
Sierra Nevada, Nev.			.50				.60						200
Silver Cord, Colo.													
Silver King, Ariz.													
Silver Min. of L. Valley													
Small Hopes, Colo.													
Standard Cons., Cal.													
Yellow Jacket, Nev.							.55						150

NON-DIVIDEND-PAYING MINES.

Name and Location of Company.	Oct. 7. H.	Oct. 7. L.	Oct. 9. H.	Oct. 9. L.	Oct. 10. H.	Oct. 10. L.	Oct. 11. H.	Oct. 11. L.	Oct. 12. H.	Oct. 12. L.	Oct. 13. H.	Oct. 13. L.	Sales.
Alpha., Nev.													
Alta, Nev.													
American Flag, Colo.													
Andes, Cal.													
Astoria, Cal.													
Augusta, Ga.													
" bonds.													
Barcelona, Nev.													
Belmont, Cal.													
Best & Belcher, Nev.				.55						.80			220
Bonanza King, Cal.													
Brunswick, Cal.	.05		.04		.05		.06						2,800
Bullion, Nev.													
Butte & Bost., Mont.													
Castle Creek, Idaho.													
Chollar, Nev.					.35								100
Comstock T., Nev.					.08	.06							6,580
Con. Imperial, Nev.													
Con. Pacific, Cal.													
Crescent, Colo.													
Del Monte, Nev.													
El Cristo, Rep. of Col.													
Emmett, Colo													
Exchequer, Nev.													
Independence, Nev.													
Julia, Nev.													
Justice, Nev													
King & Pembroke													
Lacrosse, Colo.	.04		.04		.06								1,400
Lee Basin, Colo.													
Mexican, Nev.					.70								150
Minnesota Iron													
Monitor, Colo.													
Monte Cristo, Rep. of C.													
Nevada Queen, Nev.													
N. Standard, Cal.													
N. Commonwealth, Nev													
Overman, Nev.													
Oriental & Miller, Nev.													
Phœnix Lead, Colo.													
Phœnix of Ariz.													
Potosi, Nev.													
Rappahannock, Va.													
S. Sebastian, S. Sal.													
Santiago, Rep. Colo.													
Scorpion, Nev.													
Seg. Belcher, Nev.													
Shoshone, Idaho.													
Silver Hill, Nev.													
Sullivan Con., Dak.													
Sutro Tunnel, Nev.													
Syndicate, Cal.													
Tornado Con., Nev.													
Union Cons., Nev.					.40								100
Utah, Nev.							.15						200

*Ex-dividend. †Dealt in at New York Stock Ex. Unlisted securities. ‡Assessment paid. §Assessment unpaid. Dividend shares sold, 3,550 Non-dividend shares sold, 11,550.
Total shares sold, 15,110.

BOSTON MINING STOCK QUOTATIONS.

Name of Company.	Oct. 6.	Oct. 7.	Oct. 9.	Oct. 10.	Oct. 11.	Oct. 12.	Sales.
Atlantic, Mich.							
Bodie, Cal.							
Bonanza Development.							
Bost. & Mont., Mont.		22.00	21.50	22.00	22.00	21.75 22.50	22 00 795
Breece, Colo.							
Calumet & Hecla, Mich.	277	275		272½	272½		43
Catalpa, Colo.							
Central, Mich.							
Cœur d'Alene, Id.							
Con. Cal. & Va., Nev.							
Dunkin, Colo							
Eureka, Nev.							
Franklin, Mich.					10.25	9.00 10.50	31
Honorine, Utah.							
Horn Silver, Utah.							
Kearsarge, Mich.		6.50					10
Lake Superior, Iron.							
Little Pittsburg, Colo.							
Minnesota Iron, Minn.							
Napa, Cal.							
Ontario, Utah							
Osceola, Mich.		25.00	25.00	26.00 25.50	25.50 25.00	26.50	142
Quincy, Mich.						108	24
Ridge, Mich.							
Sierra Nevada, Nev.							
Silver King, Ariz.							
Stormont, Utah.							
Tamarack, Mich.	137	135 190	139	129 125	125	134 125	424
Tecumseh, Mich.							

Name of Company.	Oct. 6.	Oct. 7.	Oct. 9.	Oct. 10.	Oct. 11.	Oct. 12.	Sales.
Alloues, Mich.							
Arnold, Mich.							
Aztec, Mich.							
Brunswick, Cal.							
Butte & Boston, Mont.	7.25	7.38	7.25	7.50	7.38	7.50	7.50 800
Centennial, Mich.							
Colchis, N. Mex.							
Copper Falls, Mich.							
Crescent, Colo.							
Dana, Mich.							
Don Enrique, Mex.							
Geyser, Colo.							
Hanover, Mich.							
Humboldt, Mich.							
Hungarian, Mich.							
Huron, Mich.							
Mesnard, Mich.							
National, Mich.							
Native, Mich.							
Oriental & M., Nev.							
Phœnix, Ariz.							
Pontiac, Mich.							
Rappahannock, Va.							
Santa Fe, N. Mex.							
Shoshone, Idaho.							
South Side, Mich.							
Tamarack, Jr., Mich.		16.50	15.00			15.00	17.50 17.50 200
Washington, Mich.							
Wolverine, Mich.							

Dividend shares sold, 1,469. Non-dividend shares sold, 1,009. Total shares sold, 2,478.

DIVIDEND-PAYING MINES.

	Name and Location of Company.	Capital Stock.	Shares. No.	Par	Assessments. Total levied.	Date and amount of last			Dividends. Total paid.	Date & amount of last.		
1	Adams, s. L. C.	Colo.	$1,500,000	150,000	$10	*				$637,500	Jan.	1892 .05
2	Alaska-Treadwell, g.	Alaska	5,000,000	200,000	25					1,650,000	June	1893 .25
3	Alice, s.	Mont.	10,000,000	400,000	25	*				975,000	Nov.	1891 .06¼
4	Alma & Nel Wood., g	Idaho	300,000	30,000	10	*				60,000	Jan.	1889 .50
5	Amador, g.	Cal.	1,250,000	250,000	5	*				31,250	Aug.	1890 .12½
6	American, g.	Colo.	3,000,000	300,000	10	*				225,000	Mar.	1892 .05
7	American Belle, s. g. c	Colo.	2,000,000	400,000	5	*				50,000	April	1891 .12½
8	Americ'n & Nettie, g. s	Colo.		200,000						175,000	Mar.	1892 .05
9	Atlantic, c.	Mich.	1,000,000	40,000	25	280,000	April	1875	$1.00	700,000	Feb.	1891 1.00
10	Argenta, s.	Nev.	10,000,000	100,000	100	335,000	July.	1889	.10	40,000	Feb.	1880 .20
11	Argyle, g.	Colo.	1,000,000	1,000,000	1	*				20,000	Mar.	1892 .01
12	Aspen Mg. & S., s. L.	Colo.	2,000,000	200,000	10	*				820,000	Oct.	1893 .10
13	Aurora, I.	Mich.	2,500,000	100,000	25					650,000	Feb.	1893 2.00
14	Badger, s	Ont.	250,000	50,000	5					87,500	Mar.	1890 .25
15	Bald Butte	Mont.	250,000	250,000	1	*				110,000	July.	1893 .02
16	Bates Hunter, s. g.	Colo.	1,000,000	1,000,000	1					67,500	Dec.	1891 .00¾
17	Belle Isle, s.	Nev.	10,000,000	100,000	100	240,000	Mar	1893	.10	300,000	Dec.	1879 .25
18	Belcher, s. g.	Nev.	10,400,000	104,000	100	3,242,100	July	1893	.25	15,397,000	April	1876 1.00
19	Bellevue, Idaho, s. L.	Idaho	1,250,000	125,000	10	120,000	Dec.	1889	.25	200,000	Jan.	1890 .10
20	Best Friend	Colo.	1,000,000	1,100,000	1	*				90,000	Feb.	1892 .01
21	Bi-Metallic, s. g.	Mont.	5,000,000	400,000	25					2,330,000	June	1893 .10
22	Bodie Con., g. l.	Cal.	10,000,000	100,000	100	640,000	July	1893	.15	1,602,572	April	1885 .50
23	Boston & Mont., g.	Mont.	2,500,000	250,000	10	*				520,000	June	1896 .15
24	Boston & Mont., c. s.	Mont.	8,125,000	125,000	25	*				2,075,000	Nov.	1891 1.00
25	Brooklyn Lead, L. s.	Utah	500,000	50,000	10					127,000	July.	1887 .05
26	Brotherton, s.	Mich.	2,000,000	80,000	25	*				120,000	Mar.	1893 .50
27	Bulwer, g.	Cal.	10,000,000	100,000	10	155,000	July	1893	.15	190,000	Oct.	1891 .05⅝
28	Bunker Hill & S. s. L.	Idaho	3,000,000	300,000	10	*				150,000	Oct.	1888 .06
29	Caledonia, g.	Dak.	10,000,000	100,000	100	505,000	May.	1885	.15	192,000	Oct.	1890 .06¼
30	Calliope, s.	Colo.	1,000,000	1,000,000						140,000	Jan.	1891 .00
31	Calumet & Hecla c.	Mich.	2,500,000	100,000	$25	1,200,000				39,850,000	Sept.	1893 5 00
32	Centen'l-Eureka, s. L.	Utah.	1,500,000	30,000	50					675,000	June	1893 .50
33	Central, c.	Mich.	500,000	20,000	25	100,000	Oct.	1861	.65	1,970,000	Feb.	1891 1.00
34	Champion, g	Cali.	340,000	34,000	10					139,700	July	1893 .10
35	Chrysolite, s. L.	Colo.	$10,000,000	200,000	50	*				1,650,000	Dec.	1884 .25
36	Clay County, g.	Colo.	200,000	200,000	1	*				56,000	Nov.	1891 .02
37	Clinton Con, g.	Cal.	5,000,000	100,000	5					80,000	Nov.	1891 .10
38	Cœur D'Alene, s. L.	Idaho	5,000,000	500,000	.10					412,000	June	1893 .03
39	Colorado Central, s. L.	Colo.	2,750,000	275,000	10	*				530,000	April	1893 .05
40	Commonwealth, s.	Nev.	10,000,000	100,000	100	20,000	Nov.	1893	.10	20,000	Nov.	1890 .20
41	Confidence, s. L.	Nev.	2,496,000	24,960	100	1,589,550	Aug.	1892	.50	199,680	April	1889 1.00
42	Cons. Cal. & Va., s. g	Nev.	21,600,000	216,000	$100	216,000	Dec.	1892	.50	3,628,000	Aug.	1891 .50
43	Contention, s.	Ariz.	12,500,000	250,000	50					2,637,500	Aug.	1892 .20
44	Cook's Peak, s.	N. M.	2,000,000	200,000	10					114,332	Nov.	1892 .05
45	Cop. Queen Con., c.	Ariz.	2,000,000	200,000	10					1,500,000	Aug.	1893 .25
46	Coptic	Nev.	10,000,000	100,000	100	*				67,000	July.	1892 .12
47	Cortez, s.	Nev.	1,500,000	300,000	05	*				687,000	Mar.	1892 .50
48	Crescent, s. L. g.	Utah.	15,000,000	600,000	25	60,000	Oct.	1892	.10	238,000	Oct.	1888 .03
49	Crown Point, g. s.	Nev.	10,000,000	100,000	100	2,750,000	June	1893	.25	11,898,000	Jan.	1875 2.00
50	Cumberland, L. s.	Mont.	5,000,000	500,000	10	*				15,000	Nov.	1889 .03
51	Daly, s. L.	Utah.	3,000,000	150,000	20					2,800,000	June	1893 .25
52	Deer Creek, s. g.	Idaho	1,000,000	200,000	5	*				20,000	June	1889 .05
53	Deadwood-Terra, g.	Dak.	5,000,000	200,000	25	*				1,150,000	Oct.	1892 .05
54	DeLamar, g. & s.	Idaho	2,000,000	400,000	25					900,000	July	1893 .25

NON-DIVIDEND-PAYING MINES.

	Name and Location of Company.	Capital Stock.	Shares. No.	Par	Assessments. Total levied.	Date and am't of last.		
1	Alliance, s. g.	Utah.	$100,000	100,000	$1	$120,000	Feb.	1891 .20
2	Alloues, c.	Mich.	2,000,000	80,000	25	1,424,937	Oct.	1891 .50
3	Alpha Con., g. s.	Nev.	3,000,000	30,000	100	209,000	Sept.	1892 .10
4	Alta, s.	Nev.	10,080,000	100,800	100	3,369,880	Jan.	1892 .10
5	American. c.	Idaho	5,000,000	500,000	100			
6	American Flag, s.	Colo.	1,250,000	125,000	1	300,000	June	1887
7	Amity, s.	Colo.	250,000	250,000	20			
8	Anchor, s. L. g.	Utah.	3,000,000	150,000	5	410,000	June	1890 .20
9	Anglo-Montana, Lt.	Mont.	600,000	120,000	125			
10	Appalachian, g.	N. C.	1,750,000	1,400,000	20			
11	Arizona, c.	Ariz.	3,575,000	160,000	2			
12	Astoria, g.	Cal.	200,000	100,000	5			
13	Atlanta, g. s.	Idaho	3,250,000	650,000	25			
14	Barcelona, g.	Nev.	5,000,000	300,000	5	*		
15	Bear Creek	Idaho	100,000	20,000	1			
16	Belmont, g.	Cal.	500,000	500,000	100	*		
17	Belmont, s.	Nev.	5,000,000	50,000	100	735,000	April	1886 .10
18	Best & Belcher, s. g.	Nev.	10,080,000	100,800	10	2,405,275	Aug.	1892 .25
19	Black Oak, g.	Cal.	3,000,000	300,000	100	*		
20	Boston Con., g.	Cal.	10,000,000	100,000	1	170,000	Nov.	1883 .25
21	Brownlow, g.	Colo.	250,000	250,000	5			
22	Brunswick, g.	Cal.	2,000,000	400,000	2			
23	Buckeye, s. L.	Mont.	1,000,000	500,000	100			
24	Bullion, s. g.	Nev.	10,000,000	100,000	100	7,890,000	Aug.	1892 .25
25	Burlington, g. s.	Cal.	10,000,000	100,000				
26	Butte & Boston, c. s.	Mont.	5,000,000	200,000	10			
27	Butte Queen, g.	Cal.	1,000,000	100,000	1	6,000	Jan.	1892 .04
28	Calaveras, g.	Cal.	500,000	500,000	5			
29	Calaveras Con., g.	Cal.	800,000	160,000	10			
30	California, c.	Cal.	1,000,000	100,000	5	9,000	Mar.	1892 .03
31	California Con. I. Q.	Cal.	2,250,000	450,000	10			
32	Camille, g	Ga.	1,500,000	150,000	5	*		
33	Carisa, g.	Wy.	500,000	100,000	2	*		
34	Carupano, g. s. L. c.	Ven.	200,000	100,000	2	*		
35	Cashier, g. s.	Colo.	500,000	250,000	100	*		
36	Challenge Con., g. s.	Nev.	5,000,000	50,000	10			
37	Cherokee, g.	Cal.	1,500,000	150,000	100			
38	Chollar, s. g.	Nev.	11,200,000	112,000	2	1,850,000	May.	1892 .50
39	Cleveland, t.	Dak.	1,000,000	500,000	10	*		
40	Colchis, s. g.	N. M.	500,000	150,000	5			
41	Colorado, s.	Colo.	1,625,000	325,000	1			
42	Comstock, s.	Utah.	1,250,000	250,000	100			
43	Comstock Tun.	Nev.	10,000,000	100,000	100	35,000	Mar.	1887 .15
44	Con. Imperial, g. s.	Nev.	5,000,000	50,000	50	2,062,500	Jan.	1892 .25
45	Con. New York, s. g.	Nev.	5,000,000	100,000	100	110,000	Mar.	1892 .10
46	Con. Pacific, g.	Cal.	6,000,000	60,000	10	198,000	June	1890 .10
47	Con. Silver, s.	Mo.	2,500,000	250,000	5			
48	Cordova Union, g.	Cal.	1,000,000	200,000	10			
49	Crescent, s. L.	Colo.	3,000,000	300,000	100	*		
50	Crocker, s.	Ariz.	10,000,000	100,000	1	165,000	Aug.	1892 .05
51	Crowell, g.	N. C.	500,000	500,000	1			
52	Dahlonega, g.	Ga.	250,000	250,000	10	*		
53	Dandy, s.	Colo.	5,000,000	500,000				
54	Decatur, s	Colo.	1,500,000	300,000				

DIVIDEND-PAYING MINES.

	Name and Location of Company.		Capital Stock.	Shares. No.	Par	Assessments. Total Levied	Assessments. Date and amount of last.			Dividends. Total paid.	Dividends. Date & amount of last.		
55	Derbee B. Grav., G...	Cal..	10,000,000	100,000	100	100,000	Sept.	1892	.10	60,000	Aug..	1891	.10
56	Dexter, g. s.....	Nev..	1,000,000	100,000	10	.....	.....	.....	.....	105,000	July	1893	.25
57	Dunkin, s. L....	Colo..	5,000,000	200,000	25	*	.....	.....	.....	890,000	Oct..	1889	.05
58	Elkhorn, s. L...	Mont.	1,000,000	200,000	5	*	.....	.....	.....	1,038,670	June	1893	37½
59	Enterprise, s.	Colo..	2,500,000	500,000	5	*	.....	.....	.....	875,000	June	1893	.25
60	Eureka Con., s. L.. G.	Nev...	500,000	50,000	100	550,000	June	1889	.50	5,112,500	Jan .	1892	.25
61	Evening Star, s. L....	Colo..	1,000,000	50,000	10	*	.....	.....	.....	1,450,000	Dec.	1889	.2
62	Father de Smet, G...	Dak..	10,000,000	100,000	100	200,000	Nov..	1878	1.00	1,125,000	Dec..	1885	.20
63	Franklin, C..	Mich..	1,000,000	40,000	25	220,000	June	1871	.....	1,100,000	July	1892	2.00
64	Freeland, s. G.....	Colo..	5,000,000	200,000	25	*	.....	.....	.....	190,000	July.	1886	.10
65	Garfield Lt., G. S....	Nev ..	500,000	100,000	5	.....	.....	.....	.....	90,000	April	1888	.12½
66	Glengarry	Mont.	1,000,000	100,000	10	.....	.....	.....	.....	10,000	June	1891	.10
67	Gold Rock.....	Colo..	500,000	500,000	1	.....	.....	.....	.....	85,000	April	1893	.02
68	Golden Reward. . .	S.Dak	1,250,000	250,000	5	.....	.....	.....	.....	17,500	July	1891	.75
69	Gould & Curry, s. G..	Nev...	10,800,000	108,000	100	4,591,200	June	1892	.25	3,826,800	Oct..	1870	10.00
70	Grand Prize, s.....	Nev...	10,000,000	100,000	100	785,000	Jan..	1890	.30	495,000	Mar.	1884	.25
71	Granite, s. L..... ..	Idaho	500,000	500,000	1	*	.....	.....	.....	83,400	Nov..	1890	.02
72	Granite Mountain, s.	Mont.	10,000,000	400,000	25	.....	.....	.....	.....	12,120,000	July.	1892	.20
73	Great Western, L. Q..	Cal...	1,250,000	50,000	100	*	.....	.....	.....	444,861	May.	1893	.25
74	Green Mountain, G..	Cal...	1,250,000	125,000	10	*	.....	.....	.....	212,000	Nov.	1881	.07½
75	Hale & Norcross, G. S.	Nev...	11,200,000	112,000	100	5,556,800	June	1893	.50	1,822,000	Aug.	1888	.50
76	Hecla Con., s. G. L. C.	Mont.	1,500,000	30,000	50	*	.....	.....	.....	2,055,000	Sept.	1893	.50
77	Hel'a Mg.& Red.s.L.G.	Mont.	3,315,000	663,000	5	.....	.....	.....	.....	197,970	July.	1886	.06
78	Helena & Frisco, s.L.	Idaho	2,500,000	500,000	5	.....	.....	.....	.....	170,000	July.	1891	.02
79	Helena & Victor.....	Mont.	1,000,000	200,000	5	.....	.....	.....	.....	80,000	May.	1892	.05
80	***Holmes, s..... .	Nev...	10,000,000	100,000	100	370,000	May.	1890	.25	75,000	Apr.	1886	.25
81	Homestake, G.....	Dak..	12,500,000	125,000	100	200,000	July.	1878	1.00	5,043,750	Sept..	1893	.10
82	Honorine, s. L.....	Utah..	500,000	250,000	2	37,500	April	1889	.05	125,000	Sep.	1887	.05
83	Hope, s.....	Mont.	1,000,000	100,000	10	*	.....	.....	.....	508,252	Oct...	1893	.25
84	Horn-Silver, s. L.....	Utah..	10,000,000	400,000	25	*	.....	.....	.....	4 750,000	Sept.	1893	.12½
85	Hubert, G.....	Colo..	1,000,000	1,000,000	1	*	.....	.....	.....	247,000	Dec	1889	.00½
86	Idaho, G.....	Cal..	$10,000	3,100	100	.....	.....	.....	.....	5,489,000	Sept..	1893	2.50
87	Illinois, s.....	N. M..	100,000	100,000	1	*	.....	.....	.....	45,000	April	1889	.20
88	Iron Hill, s.....	Dak..	2,500,000	250,000	10	134,000	July.	1889	.08	156,250	Nov..	1887	.07½
89	Iron Mountain, s....	Mont.	5,000,000	500,000	10	*	.....	.....	.....	245,000	July.	1893	.03
90	Iron-Silver, s. L.....	Colo..	10,000,000	500,000	20	*	.....	.....	.....	2,500,000	April	1889	.20
91	Jack Rabbit, G.....	Cal..	10,000,000	100,000	100	100,000	Sept..	1892	.10	260,000	Aug.	1891	.10
92	Jackson, G. S.....	Nev..	5,000,000	50,000	100	247,500	Mar..	1893	.20	60,000	Jan.	1891	.10
93	Kearsarge, C.....	Mich..	1,000,000	40,000	25	190,000	Oct..	1887	1.00	80,000	Jan.	1890	2.00
94	Kennedy.....	Cal...	10,000,000	100,000	100	.....	.....	.....	.....	387,000	May..	1892	.15
95	Kentuck, s. G.....	Nev..	3,000,000	30,000	100	454,180	Oct..	1891	.15	1,350,000	Dec	1886	.10
96	La Plata, s. L..... ..	Colo..	2,000,000	200,000	10	*	.....	.....	.....	610,000	Sept.	1882	.30
97	Leadville Con., s. L..	Colo..	4,000,000	400,000	10	*	.....	.....	.....	316,500	Feb..	1892	.03
98	Lexington, G. S....	Mont.	4,000,000	40,000	100	*	.....	.....	.....	652,200	July.	1893	.90
99	Little Chief, s. L....	Colo..	10,000,000	200,000	50	*	.....	.....	.....	820,000	Dec..	1890	.05
100	Little Rule, s..... .	Colo..	500,000	500,000	1	.....	.....	.....	.....	220,000	Dec...	1891	.02
101	Maid of Erin.....	Colo..	3,000,000	600,000	5	.....	.....	.....	.....	708,500	April	1885	.25
102	Mammoth, s. L. C....	Utah	10,000,000	400,000	250	110,000	.....	1882	.25	1,040,000	Dec...	1891	.10
103	Martin White, s.....	Nev.	10,000,000	100,000	100	1,300,000	Nov..	1892	.25	140,000	Dec..	1886	.25
104	Mary Murphy, s. G...	Colo..	350,000	3,500	101	*	.....	.....	.....	175,000	May..	1888	5.00
105	Matchless, s. L	Colo..	500,000	500,000	1	*	.....	.....	.....	15,000	Feb...	1890	.00½
106	Maxfield	Utah.	3,000,000	300,000	10	.....	.....	.....	.....	117,000	April	1892	.03
107	Mayflower, D. gravel	Cal...	1,000,000	100,000	10	.....	.....	.....	.....	160,000	July	1893	.10
108	May Mazeppa, s. L...	Colo..	1,000,000	100,000	1	.....	.....	.....	.....	205,000	Oct..	1891	.03½
109	Minas Prietas, G. S...	Mex..	1,000,000	100,000	10	*	.....	.....	.....	350,000	Dec..	1890	.50
110	Minnesota, C.....	Mich..	1,000,000	40,000	25	420,000	April	1886	1.00	1,820,000	Mar..	1876	.....
111	Mollie Gibson, s....	Colo..	5,000,000	1,000,000	5	.....	.....	.....	.....	3,830,000	Oct..	1893	.05
112	Monitor, G.....	S.Dak	2,500,000	250,000	10	.....	.....	.....	.....	45,000	Oct..	1890	.03
113	Mono, G.....	Cal..	5,000,000	50,000	100	797,500	Feb..	1893	.25	12,500	Mar.	1886	.25
114	Montana, Lt., G. S....	Mont.	3,300,000	660,000	5	.....	.....	.....	.....	2,619,075	June.	1891	12½
115	Morning Star, s. L....	Colo..	1,000,000	100,000	10	.....	.....	.....	.....	925,000	April	1891	.25
116	Morning Star Drift, G	Cal...	240,000	2,400	100	*	.....	.....	.....	140,600	April	1893	3.00
117	Moulton, s. G.....	Mont.	$2,000,000	400,000	5	*	.....	.....	.....	410,000	Nov.	1892	.07½
118	Mt. Diablo, s.....	Cal..	$5,000,000	50,000	100	137,500	June	1880	2.00	210,000	July.	1891	.20
119	Napa, Q.....	Cal..	700,000	100,000	7	.....	.....	.....	.....	590,000	Oct..	1893	.10
120	Navajo, G. S..... ...	Nev..	10,000,000	100,000	100	590,000	Mar..	1893	.10	229,950	April	1889	.10
121	Newton.....	Cal..	10,000,000	100,000	100	.....	.....	.....	.....	10,000	May..	1891	.05
122	New California, G....	Colo..	800,000	160,000	5	*	.....	.....	.....	48,800	May..	1890	.12½
123	New Guston, s.....	Colo..	550,000	110,000	5	.....	.....	.....	.....	1,877,500	April	1892	.75
124	North Banner Con..	Cal..	1,000,000	100,000	10	.....	.....	.....	.....	20,000	July..	1891	.05
125	North Commonw'th	Nev,,	10,000,000	100,000	10	90,000	Jan..	1893	.10	25,000	June.	1891	.25
126	N. Hoover Hill, G. S.	N. C .	300,000	120,000	2½	*	.....	.....	.....	30,000	Dec..	1885	.06¾
127	North Belle Isle, s...	Nev..	10,000,000	100,000	100	440,000	April	1893	.10	230,000	May .	1888	.50
128	North Star, G..... ...	Cal..	1,000,000	100,000	10	.....	.....	.....	.....	450,000	June	1893	.50
129	Omaha Cons.,G.....	Cal...	2,400,000	24,000	100	.....	.....	.....	.....	30,000	May..	1892	.15
130	Ontario, s. L.....	Utah	15,000,000	150,000	100	.....	.....	.....	.....	13,175,000	Oct..	1892	.50
131	Ophir, G. S.....	Nev..	10,000,000	100,000	100	4,391,040	July.	1863	.25	1,595,800	Jan..	1880	1.00
132	Original, s. C.....	Mont.	1,500,000	60,000	25	*	.....	.....	.....	138,000	Jan..	1889	.05
133	Oro, s. L. G.....	Colo..	500,000	100,000	5	.....	.....	.....	.....	95,000	July	1890	.20
134	Osceola, C..	Mich..	1,250,000	50,000	25	480,000	April	1876	1.60	1,747,500	May.	1893	1.00
135	Pacific Coast, S.....	Cal...	1.500.000	15.000	100	.....	.....	.....	.....	360,000	Dec.	1892	1.00
136	Pan American, G. S..	Utah.	600,000	600,000	1	.....	.....	.....	.....	3,000	Sept..	1893	.00½
137	Parrot, C.....	Mont.	1,800,000	180,000	10	.....	.....	.....	.....	1,748,000	April	1893	.10
138	Petro.....	Utah.	10,000,000	10,000	100	.....	.....	.....	.....	17,500	July	1891	.75
139	Plumas Eureka, G....	Cal...	1,406,250	140,625	10	.....	.....	.....	.....	2,669,926	April	1893	.19
140	Plymouth Con , G....	Cal...	5,000,000	100,000	50	*	.....	.....	.....	2,280,000	Sept	1893	.40
141	Poorman; G. S.....	Idaho	375,000	300,000	125	*	.....	.....	.....	68,260	Sept	1892	.....
142	Quicksilver, pref., Q.	Cal...	5,700,000	57,000	100	.....	.....	.....	.....	1,823,911	June	1891	1.25
143	" com., Q.	Cal...	1,250,000	50,000	25	.....	.....	.....	.....	643,967	July.	1882	.40
144	Quincy, C.....	Mich..	1,250,000	50,000	25	200,000	Dec..	1862	.....	6,620,000	Aug..	1892	3.00
145	Red Cloud.....	Idaho	1.000.000	200,000	5	.....	.....	.....	.....	153,000	Dec	1892	.10
146	Reed National, s. G..	Colo..	500,000	500,000	1	*	.....	.....	.....	50,000	Dec..	1890	.01
147	Retriever, L.....	S.Dak	1,250,000	250,000	5	.....	.....	.....	.....	20,000	Aug..	1891	.03
148	Rialto, G.....	Colo..	300,000	300,000	1	*	.....	.....	.....	50,250	April	1892	.01½
149	Richmond, s. L.....	Nev..	1,350,000	54,000	25	*	.....	.....	.....	4,359,887	Oct..	1893	.25
150	Rico-Aspen.....	Colo..	5,000,000	1,000,000	5	.....	.....	.....	.....	25,000	May.	1886	.02½
151	Ridge, C.....	Mich..	500,000	20,000	25	219,939	Mar.	1886	50	99,785	Feb.	1890	50
152	Robinson Con., s. L..	Colo..	10,000,000	200,000	50	*	.....	.....	.....	585,000	Mar	1886	.05
153	Running Lode, G.....	Colo..	1,000,000	1,000,000	1	*	.....	.....	.....	36,000	May	1892	.00 1-10
154	Savage, s.....	Nev..	11,200,000	112,000	100	6,966,000	June	1893	.25	4,460,000	June	1869	3.00
155	Sperdian, s. G.....	Colo..	300,000	3,000	100	*	.....	.....	.....	300,000	Oct..	1891	2.50
156	Shoshone, G.....	Idaho	150,000	150,000	1	.....	.....	.....	.....	7,500	April	1889	.01
157	Sierra Buttes, G.....	Cal...	2,225,000	122,500	10	.....	.....	.....	.....	1,544,620	April	1893	.12½
158	Sierra Nevada, s. G..	Nev..	10,000,000	100,000	100	6,521,910	Aug.	1893	.20	102,000	Jan..	1871	1.00
159	Sierra Nevada, s. L..	Idaho	1,000,000	1,000,000	1	*	.....	.....	.....	40,000	May..	1889	.02
160	Silent Friend.....	Colo..	500,000	500,000	1	.....	.....	.....	.....	60,000	Aug..	1891	.02½
161	Silver Cord, s. L. G..	Colo..	4,500,000	450,000	10	.....	.....	.....	.....	265,000	April	1893	.10
162	Silver King, s.....	Ariz..	10,000,000	100,000	100	240,000	Aug..	1892	.25	1,950,000	July	1887	.25
163	Silver Mg.of L. V.,s.L.	N. M..	500,000	500,000	1	.....	.....	.....	.....	300,000	Dec..	1891	4.05
164	Slide.....	Colo..	500,000	5,000	100	*	.....	.....	.....	20,000	Nov..	1891	4.00
165	Small Hopes Con., s.	Colo..	5,000,000	250,000	20	*	.....	.....	.....	32,000,000	Nov..	1892	.15
166	Spring Valley, G.....	Cal...	200,000	200,000	1	50,000	Oct.	1883	.25	50,000	Jan..	1881	.25
167	Standard, G. S.....	Cal...	10,000,000	100,000	100	100,000	June	1892	.50	3,665,000	July.	1893	.10
168	Stormont, s.....	Utah.	500,000	500,000	1	*	.....	.....	.....	155,000	Nov .	1881	.05
169	St. Joseph, L.....	Mo...	1,500,000	150,000	10	*	.....	.....	.....	1,974,000	Dec..	1890	.02
170	Swansea, G. S.....	Colo..	600,000	60,000	10	.....	.....	.....	.....	27,000	Mar .	1893	.10
171	Tamarack, C.....	Mich..	1,250,000	50,000	25	520,000	April	1885	3.00	3,160,000	Oct.	1892	.00
172	Teal & Poe.....	N. M..	150,000	150,000	1	.....	.....	.....	.....	9,000	Nov	1891	.01½
173	Tombstone, G. S. L....	Ariz..	12,500,000	500,000	25	*	.....	.....	.....	1,250,000	April	1882	.10
174	Trinity Riv'r Hydr.,G	Colo..	500,000	500,000	1	*	.....	.....	.....	1,000	May.	1893	.00½
175	United Verde, C.....	Ariz..	3,000,000	300,000	10	*	.....	.....	.....	207,500	Jan.	1892	.10
176	Victor, G.....	Colo.	1,000,000	200,000	5	.....	.....	.....	.....	90,000	Oct..	1893	.07½
177	Viola Lt., S. L.....	Idaho	750,000	150,000	5	.....	.....	.....	.....	337,500	Nov.	1888	.37½
178	Ward Con., S.....	Colo.	2,000,000	200,000	10	.....	.....	.....	.....	20,000	Dec.	1889	.05
179	Woodside, S. L..... .	Utah	100,000	100,000	10	.....	.....	.....	.....	25,000	Oct..	1889	.25
180	W. Y. O. D.....	Cal..	30,000	15,000	2	22,500	May.	1891	.10	64,590	Sept.	1893	.10
181	Yankee Girl, s.....	Colo.	1,300,000	260,000	5	.....	.....	.....	.....	1,405,000	Sept.	1893	1.50
182	Yellow Jacket, G. S.	Nev.	12,000,000	120,000	100	5,556,000	July.	1893	.25	2,184,000	Aug.	1871	1.50
183	Yosemite No. 2.....	Utah.	1,000,000	100,000	10	.....	.....	.....	.....	25,000	Oct..	1891	.05
184	Young America, G...	Cal...	.....	.....	.....	.....	.....	.....	.....	175,000	Jan..	1889	1.00

NON DIVIDEND-PAYING MINES.

	Name and Location of Company.		Capital Stock.	Shares. No.	Par	Assessments. Total levied.	Assessments. Date and am't of last.			
55	Denver City s.....	Colo..	5,000,000	500,000	11	*	.....	.....	.....	
56	Denver Gold, G.....	Colo..	300,000	60,000	5	.....	.....	.....	.....	
57	Dickens-Custer, s....	Idaho	2,100,000	420,000	5	.....	.....	.....	.....	
58	Durango, G.....	Colo..	500,000	500,000	1	*	.....	.....	.....	
59	Eastern Dev. Co., Lt	N. S..	1,500,000	150,000	10	990,000	Mar .	1886	1.00	
60	El Dorado, G.....	Cal..	1,000,000	250,000	4	*	.....	.....	.....	
61	El Talento, G.....	U.S.C.	1,000,000	500,000	2	.....	.....	.....	.....	
62	Emma, s	Utah.	625,000	500,000	125	.....	.....	.....	.....	
63	Emmons, s. L.....	Colo..	2,000,000	2,000,000	1	.....	.....	.....	.....	
64	Empire, s.....	Utah.	10,000,000	100,000	100	*	.....	.....	.....	
65	Eureka Tunnel, s. L.	Nev..	10,000,000	100,000	100	.....	.....	.....	.....	
66	Exchequer, s. G.....	Nev..	10,000,000	100,000	100	940,000	Jan..	1892	.20	
67	Found Treasure, G. S.	Nev...	10,000,000	100,000	100	130,500	Jan..	1892	.50	
68	Gogebic I. Syn., I....	Wis..	5,600,000	200,000	25	*	.....	.....	.....	
69	Gold Bank, g. s.....	Colo.	250,000	250,000	1	*	.....	.....	.....	
70	Gold Cup, s.....	Colo..	500,000	500,000	1	*	.....	.....	.....	
71	Golden Era, s.....	Mont.	2,000,000	200,000	10	*	.....	.....	.....	
72	Gold Flat, G.....	Cal...	1,000,000	100,000	10	5,000	Mar..	1892	.05	
73	Gold King, g.....	Colo..	1,650,000	350,000	5	.....	.....	.....	.....	
74	Gold Rock, G.....	Cal...	$1,000,000	500,000	2	.....	.....	.....	.....	
75	Golden FeatherCu..g	Cal..	900,000	180,000	5	*	.....	.....	.....	
76	Goodshaw, G.....	Cal...	10,000,000	100,000	100	*	.....	.....	.....	
77	Goodyear G. S. L	Mont.	1,000,000	200,000	5	13,000	Feb..	1892	.01	
78	Grand Belt, C	Tex..	12,000,000	120,000	100	.....	.....	.....	.....	
79	Grand Canyon, s....	Ariz...	.....	375,000	5	.....	.....	.....	.....	
80	Grand Duke, s.....	Colo..	.....	800,000	10	.....	.....	.....	.....	
81	Gregory Con., G.....	Mont.	3,000,000	300,000	10	.....	.....	.....	.....	
82	Harlem M. & M. Co., G.	Cal...	1,000,000	200,000	5	.....	.....	.....	.....	
83	Hartery Con., G.....	Cal...	1,000,000	100,000	10	22,000	Oct..	1890	.05	
84	Hartshorn, g. s. L..	S.Dak	1,250,000	250,000	5	8 750	Sept.	1891	.00½	
85	Head Cent. & Tr., s. G	Ariz..	10,000,000	100,000	100	16,981	Mar..	1892	.03	
86	Hector, G.....	Cal...	1,500,000	300,000	5	45,000	Jan..	1889	.15	
87	Highland, C.....	Mich..	500,000	25,000	20	.....	.....	.....	.....	
88	Himalaya, g. s L....	Utah.	1,800,000	80,000	10	12,800	Oct..	1892	.00½	
89	Holywood.....	Cal...	200,000	100,000	2	.....	.....	.....	.....	
90	Hortense, s.....	Colo..	2,000,000	200,000	10	.....	.....	.....	.....	
91	Huron, C.....	Mich..	1,000,000	40,000	25	280,000	May .	1887	3.00	
92	Idaho, g. s	Idaho	1,250,000	250,000	5	.....	.....	.....	.....	
93	Inez, s. L	Idaho	1,000,000	1,000,000	1	.....	.....	.....	.....	
94	Ingalls, g	Colo..	100,000	20,000	5	.....	.....	.....	.....	
95	Ironton, I.....	Wis..	1,000,000	40,000	25	.....	.....	.....	.....	
96	Iroquois, C.....	Mich..	1,250,000	50,000	25	.....	.....	.....	.....	
97	Kentuck Con.....	Nev..	10,500,000	105,000	00	57,750	July.	1892	.10	
98	J. D. Reymert, s.....	Ariz..	16,000,000	100,000	100	.....	.....	.....	.....	
99	Julia Con., G. S.....	Nev...	11,000,000	110,000	100	1,463,000	Jan..	1889	.10	
100	Justice, g. s. C.....	Colo.	500,000	500,000	1	*	.....	.....	.....	
101	Lacrosse, G.....	Colo..	1,000,000	100,000	10	*	.....	.....	.....	
102	La Cumbre, g. s....	Mex..	150,000	3,000	50	*	.....	.....	.....	
103	Lee Basin, s.....	Colo..	5,000,000	500,000	10	*	.....	.....	.....	
104	Little Josephine, s..	Colo..	250,000	50,000	5	.....	.....	.....	.....	
105	Lone Star Cons., G.,	Cal...	500,000	500,000	1	10,000	April	1892	.00½	
106	Lynx Creek, g	Ariz..	237,500	147,500	5	.....	.....	.....	.....	
107	Madeleine, G. S. L....	Colo..	750,000	50,000	1	4,500	Feb.	1892	.00½	
108	Mammoth Gold, G....	Ariz..	2,500,000	500,000	5	*	.....	.....	.....	
109	Mayflower Gravel,G.	Cal...	1,000,000	100,000	10	*	.....	.....	.....	
110	Medora, G.....	Dak..	250,000	250,000	1	585,000	Mar .	1890	.50	
111	Merrimac Con., G. S.	Colo..	5,000,000	500,000	10	.....	.....	.....	.....	
112	Mexican, G. S.....	Nev...	10,000,000	100,000	100	2,917,500	ct..	1892	.50	
113	Michigan, G S	Mich..	2,500,000	100,000	25	40,000	Mar..	1892	.....	
114	Middle Bar, G..	Cal...	400,000	200,000	2	*	.....	.....	.....	
115	Mike & Starr, s. C...	Colo..	1,000,000	200,000	5	*	.....	.....	.....	
116	Milwaukee, s..... ...	Mont.	500,000	500,000	1	*	.....	.....	.....	
117	Minah Cons..... .	Mont.	1,250,000	250,000	5	.....	.....	.....	.....	
118	Modoc Chief, I. S. G.	Idaho	1,000,000	200,000	5	5,000	Jan..	1892	.00½	
119	Monitor, G.....	Colo..	100,000	100,000	1	12,500	May.	1891	.01	
120	Montreal, G. S. L....	Utah.	750,000	150,000	5	4,500	Feb..	1892	.00½	
121	Mountain Ledge, G..	Cal...	500,000	100,000	5	.....	.....	.....	.....	
122	Mount McClellan....	Colo..	1,500,000	300,000	5	.....	.....	.....	.....	
123	Mutual Mg. & Sm....	W'sh.	100,000	100,000	1	*	.....	.....	.....	
124	Native, C.....	Mich..	1,000,000	40,000	25	.....	.....	.....	.....	
125	Neath, G.....	Colo..	1,000,000	100,000	10	.....	.....	.....	.....	
126	Nelson.....	Cal...	50,000	10,000	5	.....	.....	.....	.....	
127	Nevada Queen, s.....	Nev...	10,000,000	100,000	100	200,000	Oct..	1889	.35	
128	New Germany, G....	N. S..	100,000	100,000	1	*	.....	.....	.....	
129	New Gold Hill.....	N. C..	1,750,000	350,000	5	*	.....	.....	.....	
130	New Pittsburg, s. L..	Colo..	2,000,000	200,000	10	*	.....	.....	.....	
131	New Queen Gold, s..	Colo..	800,000	160,000	5	.....	.....	.....	.....	
132	North Standard, G...	Cal...	10,000,000	100,000	100	20,000	Nov .	.....	.....	
133	Occidental Con., G.s	.....	10,000,000	100,000	100	245,000	April	1892	.25	
134	Oneida Chief, G.....	Cal...	500,000	125,000	100	*	.....	.....	.....	
135	Oriental & Miller, s.	Nev...	10,000,000	400,000	100	.....	.....	.....	.....	
136	Original Keystone, s	Nev..	10,000,000	100,000	100	250,000	Mar..	1892	.10	
137	Osceola, G.....	Nev..	5,000,000	500,000	10	*	.....	.....	.....	
138	Overman, G. S.....	Nev...	11,520,000	115,200	100	4,001,840	May.	1892	.10	
139	Park, s.....	Utah.	2,000,000	200,000	10	.....	.....	.....	.....	
140	Parker, g.....	N. C..	750,000	180,000	.....	.....	.....	.....	.....	
141	Pay Rock, s..... ...	Colo..	1,000,000	200,000	5	.....	.....	.....	.....	
142	Peer, s.....	Ariz..	10,000,000	100,000	100	190,000	Feb..	1892	.10	
143	Peerless, s.....	Ariz..	10,000,000	100,000	100	405,000	Oct..	1890	.15	
144	Pennsylva's Cons., G	Cal...	5,150,000	515,000	10	36,050	Feb..	1892	.10	
145	Phoenix, g.....	Ariz..	500,000	500,000	1	*	.....	.....	.....	
146	Phœnix Lead, S. L. C.	Colo..	100,000	100,000	1	*	.....	.....	.....	
147	Pilgrim, G	Cal...	600,000	200,000	2	*	.....	.....	.....	
148	**Pioche M.&R.,s.G.L.	Utah.	20,000,000	2,000,000	10	.....	.....	.....	.....	
149	Poorman, Ltd., S. L.	Idaho	250,000	50,000	5	.....	.....	.....	.....	
150	Potosi, s.....	Nev..	11,200,000	112,000	100	1,575,000	Mar..	1890	.50	
151	Proustite, s.....	Idaho	250,000	250,000	1	*	.....	.....	.....	
152	Puritan, s. G.....	Colo..	1,500,000	150,000	10	*	.....	.....	.....	

COAL AND COAL RAILROAD STOCKS.

Names of Stocks.	Oct. 7. H.	Oct. 7. L.	Oct. 9. H.	Oct. 9. L.	Oct. 10. H.	Oct. 10. L.	Oct. 11. H.	Oct. 11. L.	Oct. 12. H.	Oct. 12. L.	Oct. 13. H.	Oct. 13. L.	Sales.
Am. Coal	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Balt. & Ohio	.....	.....	.....	.....	68¾	68¼	.....	.....	68⅜	.....	67	68½	700
do. pref	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Buff., R. & P.	.....	.....	26¾	25⅝	26⅜	26½	27	.....	26⅜	26⅛	26⅝	25⅞	1,000
do. pref	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Cambria Iron	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Ches. & Ohio	16⅛	.....	16⅝	16⅝	16¼	16¼	16⅛	16¼	16⅛	.....	16⅛	15⅛	2,530
do. 1st pref	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Col. C. & I	.....	.....	.....	.....	.....	.....	.....	.....	12	11	.....	.....	200
Col. Coal	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Colorado Fuel	25	.....	25½	.....	.....	.....	.....	.....	25½	26½	25½	.....	600
do. pref	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Col., H V.& Tol.	20¼	.....	20¼	20	20⅞	20	20⅝	20	20⅞	20¼	20½	19⅝	4,320
do. pfd	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Col. & H. Coal	.....	.....	.....	.....	.....	.....	.....	.....	9	8¾	8¾	8⅝	1,400
do. pfd	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Cons. Coal	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Del. & Hud. C	122¾	121¼	122¾	.....	122¾	.....	121¼	121⅛	121⅛	121¼	121¾	121	2,119
Del., L. & West.	153	152	153¾	152⅞	152⅞	152¾	152	151¾	152⅝	152	.....	.....	2,978
Hunt. & P. Top.	35½	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	73
do. pref	.....	.....	49½	.....	48⅜	.....	.....	.....	.....	.....	.....	.....	16
Lake Erie&Wes	.....	.....	.....	.....	.....	.....	16	.....	.....	.....	16⅛	15⅛	800
do. pref	68¾	.....	70	.....	70	69	69¾	.....	.....	.....	.....	.....	575
Lehigh C. & N.	49¼	49	49¼	48¾	49⅛	48¾	49¾	.....	50	49	.....	.....	278
Lehigh Valley	32⅝	32⅝	32⅝	32¼	32⅛	32	32	31½	33	32¾	.....	.....	1,765
Maryland Coal	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
do. pref	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Morris & Essex	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
New Cent. Coal	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
N. J. Central	111¼	111	111⅛	110	111	110¼	109⅝	.....	209⅛	.....	109½	108	2,567
N. Y., L. & W	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
N. Y., L. E.& W	14½	.....	14⅝	14½	14	13⅝	14	13¾	14⅝	13⅜	13⅝	13¼	7,410
do. pref	.....	.....	.....	.....	.....	.....	28	.....	.....	.....	.....	.....	50
N.Y., Susq.& W	14	.....	14	.....	13¾	13⅝	13⅜	13⅜	13⅜	13	13¼	13½	2,676
do. pref	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
do. pref., new	.....	.....	43¼	.....	.....	.....	42¼	..	.....	.....	42¼	..	350
N. & West	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
do. pref	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Penn. Coal	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Penn. R. R	50⅛	50⅜	50⅞	50⅜	50¾	50⅛	50⅜	50⅛	50⅝	50⅝	.....	.....	2,995
Phil. & Reading	19⅛	18⅝	18⅞	18¼	18	17⅝	17⅝	16⅝	17¾	16¾	16⅜	15⅞	43,245
Tenn. C. & I.	15¾	.....	15¾	15⅜	15	.....	15	14⅜	15	.....	15	14¼	3,199
do. pref	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Wheel. & L. E.	.....	.....	13	.....	12¾	.....	.....	.....	.....	.....	13¼	12⅞	950
do. pref	47½	42½	48⅛	42¾	.....	.....	43	.....	.....	.....	44¾	.....	1,200

Total shares sold, 84,027.

INDUSTRIAL AND TRUST STOCKS.

Name of Stocks.	Oct. 7. H.	Oct. 7. L.	Oct. 9. H.	Oct. 9. L.	Oct. 10. H.	Oct. 10. L.	Oct. 11. H.	Oct. 11. L.	Oct. 12. H.	Oct. 12. L.	Oct. 13. H.	Oct. 13. L.	Sales.
Adams Express	.....	.....	145	.....	.....	.....	145	.....	145	141	.....	.....	81
Am. Cotton Oil.	35	.....	37	25	36⅞	36	36¼	35½	36¾	35½	35½	34¼	8,695
do. pref	70	.....	72¾	71	.....	.....	71½	.....	73⅜	.....	71	69½	1,736
Am. Dist. Tel	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Am. Express	112	.....	.....	.....	112	110	112	110	112	110	.....	.....	255
Am. Sugar Ref	89⅞	89⅜	90¼	89¾	92¼	90¾	92¼	90⅝	93⅛	91⅛	91¼	88¾	156,593
do. pref	87½	.....	87½	.....	88⅛	88¼	88⅛	88	88⅜	.....	.....	.....	1,526
Edison E. Ill. Co.	92	.....	94½	94	94⅛	.....	94¾	.....	96	.....	.....	.....	575
Edison Gen. El.	44¾	43½	46¼	44½	46¼	44¼	45	43⅝	46⅛	44⅜	44⅜	42⅝	28,193
Nat. Cord. Co	.....	.....	24¼	24	24	23¾	25½	23	27½	26	25	24⅜	13,501
do. pref	.....	.....	.....	.....	.....	.....	.....	.....	52	46	55	48	545
Nat. Lead Co	26½	26⅛	27	25¼	26¼	25⅝	26	25⅜	27⅜	26⅛	26⅝	25¾	12,601
do. pref	71¾	.....	72	70	72	.....	71¾	70½	72	.....	70½	.....	1,965
Nat. Linseed Oil	.....	.....	18¾	.....	18¾	.....	18¼	18	.....	.....	.....	.....	490
U. S. Express	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
U. S. Rubber	.....	.....	32	.....	30	.....	30	.....	31½	.....	30¼	29¼	80
do. pref	.....	.....	.....	.....	.....	.....	.....	.....	75	.....	.....	.....	107
Wells, Fargo Ex	.....	.....	140	129	132	130	135	132	.....	.....	.....	.....	159
Western Union	82⅝	81¼	83	81⅝	82⅝	82	82⅜	81⅜	82⅝	81⅜	81⅛	80½	26,039

Total sales, 255,711.

CALIFORNIA.

San Francisco.

Names of Stocks.	Closing Quotations. Oct. 6.	Oct. 7.	Oct. 9.	Oct. 10.	Oct. 11.	Oct. 12.
Alpha	.....	.....	.....	.....	.....	.....
Alta	.....	.10	.10	.10	.15	.10
Belcher	.....	.....	.....	.....	.....	.....
Belle Isle	.05	.....	.....	.....	.....	.....
B. & Belch	.40	.40	.60	.50	.50	.60
Bodie	.15	.10	.20	.20	.20	.20
Bulwer	.10	.....	.20	.10	.10	.10
Challar	.15	.20	.25	.25	.25	.20
Com'w'lth	.....	.....	.....	.....	.....	.....
Con.C.&V.	1.30	1.40	1.85	2.40	2.30	1.95
Con. Pac.	.....	.....	.....	.....	.....	.....
Crown Pt.	.....	.10	.25	.20	.25	.20
Del Monte	.....	.....	.....	.....	.....	.....
E'rekaCon	.....	.....	.....	.....	.....	.....
G'ld & C'y	.20	.15	.30	.40	.35	.30
Hale & N.	.35	.35	.45	.50	.50	.50
M. White	.....	.....	.....	.....	.....	.....
Mexican	.55	.60	.60	.70	.70	.65
Mono	.10	.....	.....	.05	.....	.....
Mt. Diablo	.....	.....	.....	.....	.....	.....
Navajo	.....	.....	.....	.....	.....	.....
Nev. Qu'n.	.....	.....	.....	.....	.....	.....
N.B'lleIsle	.....	.....	.....	.....	.....	.....
N. Co'w'th	.....	.....	.....	.....	.....	.....
Ophir	.75	.80	.95	1.20	1.20	1.00
Potosi	.....	.25	.25	.30	.30	.55
Savage	.25	.30	.35	.40	.40	.30
Sierra Nev	.40	.40	.55	.55	.55	.50
Utn Con	.20	.30	.35	.40	.40	.35
Utah	.....	.....	.10	.10	.10	.10
Yel. Jack	.40	.40	.50	.50	.....	.....

COLORADO.

Aspen. Oct. 10.

	Price.
Argentum Juniata	$0.35
Aspen Contact	.50
Aspen Deep Mining	....
Best Friend	....
Bi-Metallic	.08
Bushwacker	.10
Delia S.	...
Gold Valley Placer	....
Little Annie	.06
Mollie Gibson	2.25
Pontiac	.04½
Smuggler	19.00
St. Joe & Mineral Farm	.05½
U. S. Paymaster	....

Colorado Springs. Oct. 10.

Special Report by McIntyre & Hayden.

	Price.
Anaconda Gold	$0.17
Anchoria Lel'd	.04½
Antlers P. K. Reg	.10
Calumet	.01¾
Cleopatra	.06
C. O. D.	.03
Cook's Peak	.40
Del Monte	.03½
Eldorado	.05
Enterprise	.03½
Fanny Rawlins	.05⅝
Golden Dale	.01
Isabella	.11½
Jeff Davis	....
Lemhi	.45
Mollie Gibson	2.50
Mount Rosa	.....
Pharmacist	.19
Summit M. & M.	.15½
Union	.05
Work	.02½
World	.01½

MARYLAND.

Baltimore. Oct. 12.

Company.	Bid.	Asked.
Balt. & N. C.	....	$0.04
Conrad Hill	....	.10
Cons. Coal	$0.23	.....
Diamond Tunnel	....	14.00
George's Creek Coal.	1.00	1.02
Howard C. & C.	1.15	....
Lake Chrome	.01@.02	....
Silver Valley	....	.40

MONTANA.

Helena.

Prices for the week ending Oct. 4:
Specially Reported by S. K. Davis.

	Bid.	Asked.
Bald Butte (Mont.)	$2.25	$2.50
Benton Group (Neihart), Mont.	.15	.25
Combination(Phillipsb'g),Mont	.60	.75
Cumberland (Castle), Mont	...	....
Elizabeth (Phillipsb'g), Mont	....	.20
Florence (Neihart)	...	....
Helena & Victor, Mont	....	....
Iron Mountain(Missoula),Mont	.50	.60
Piegan (Marysville), Mont	.25	1.00
Peorman (Cœur d'Alene),Idaho	.40	.50
Whitlach Union & MacIntyre	.35	.40

MINNESOTA.

Duluth. Sept. 22.

LISTED STOCKS.

	Par.	Bid.	Asked.
Biwabik M. Iron Co	100	$20.00	$22.00
Cincinnati Iron Co	25	.27	.40
Clark Iron Co	100	....	.60
Cosmopolitan Iron Co	...	....	....
Great Northern Min. Co.	100	4.00	4.50
Kanawha Iron Co	100	.10	.20
Keystone Iron Co	...	....	.40
Lake Superior Iron Co	25	2.00	3.00
Lincoln Iron Co	..	....	.50
Little Mesaba Iron Co	100	....	....
Mesaba Moun. Iron Co.	100	11.00	15.50
Minneapolis Iron Co	100	.02	.15
Mountain Iron Co	100	45.00	55.00
Shaw Iron Co	100	3.00	3.25
Security Land & Exp. Co.	10	10.00	16.00
Washington Iron Co	100	....	....

UNLISTED STOCKS.

Adams Iron Co	$8.00	$9.00
Agate Copper Mining Co	....	1.00
Allegheny Iron Co	....	....
Aurora Iron Co	....	....
Buckeye Iron Co	....	2.50
Buffalo Land & Exp. Co.	....	.50
Camden Iron Co	....	.25
Chandler Iron Co	....	.00
Charleston Iron Co	.25	.30
Champion Iron Co	.10	.40
Chicago Iron Co	.15	.20
Cleveland Iron Co	....	....
Columbia Iron Co	....	....
Commodore Mining Co	....	....
Comstock Iron Co	....	....
Dayton Iron Co	....	....
Detroit Iron Co	.0	.02½
Elmira Land & Iron Co	.10	.25
Great Western Mining Co.	2.10	2.75
Hall Iron Co	....	....
Homestead Iron Co	.00½	.04
Horton Mining Co	....	....
Imp. Iron Mt. Mining Co.	....	....
Internat'l Development	....	2.50
Kakina Iron Co	....	....
Kentucky Iron Co	....	....
Lackawanna Iron Co.	.25	.45
Macomber Mining Co	....	....
McCaskill Mining Co	.01	.05
McKinley Iron Co	....	24.50
Mesaba C., L. & Ex. Co.	....	6.00
Mesaba Chief Iron Co	1.90	2.10
Mesaba Iron Co	....	.20
Mesaba Mineral Co	....	....
Minnesota Iron Co	42.00	55.00
Myrna Iron Co	....	....
Northern Light Iron Co	....	.25
New England Iron Co	....	....
Ohio Mining Co	....	6.00
Oneota Iron Co	....	....
Ophir, gold	1.00	2.00
Pennsylvania I. & S. Co.	.04	.10
Pioneer	....	1.00
Putnam	....	.80
Rouchleau Iron Co	.35	.50
Republic Iron Co	....	.50
Red Hematite Iron Co	....	.15
Sheridan Iron Co	....	.20
Standard Ore Co	.25	.50
Stowell Iron Co	....	....
Towanda Iron Co	1.50	2.00
Ver. & Mesaba Iron Co	....	1.00
Zenith Iron Co	.20	.40

MISSOURI.

St. Louis. Oct. 11.

Closing quotations:

	Bid.	Asked.
Adams	$0.40	....
American & Nettie, Colo	.25	$0.30
Bi-Metallic, Mont	....	4.00
Elizabeth, Mont	.15	.20
Granite Mountain, Mont	....	2.25
Hope	....	2.50
Leo	.01½	.02
Small Hopes	....	.50

PENNSYLVANIA.

Philadelphia. Oct. 12.

	Bid.	Asked.
Bloomington C. & C	....	....
Buck Mountain C	....	....
Cambria	....	$0.65
Connellsville Gas Co	....	....
Edison E. Light Co	$1.18	....
Penn. Salt	...	100
Penn. Steel	....	.50
Penn. Gas Coal	.47	....
Royal Gas	....	....
Westmoreland C	.52@.53	....

Pittsburg. Oct. 11.

	Bid.	Asked.
Bridgewater Gas Co.	$36.00	....
Chartiers Val. Gas	....	$9.00
Con. Gas	48.00	....
Enterprise Mining Co	.40	....
Hidalgo Mining Co	1.00	....
La Noria Mining Co	7.00	7.38
Luster Mining Co	7.00	7.38
Manufacturers' Gas	25.00	28.00
N Y. & Clev. G. C	....	51.00
Ohio Valley Gas	....	30.00
Pennsylvania Gas	8.00	....
People's N. G. & P. Co.	14.50	15.38
Philadelphia Co.	20.50	20.63
South Side Gas	....	25.00
Tuna Oil	....	....
Wheeling Gas Co	....	19.00
W'house Air Brake Co	113.00	115.00

London Quotations.

Oct. 3, 1893.

	Buyer. £ s. d.	Seller. £ s. d.
Alaska Treadwell,		
Alaska Ter	1 17 6	2 6
Almada & Tirito, Mex.	9	1 0
American Belle, Colo.	1 0	1 6
Big Creek, Nev	2 6	5 0
Bonanza Gold, Cal	5 0	6 0
De Lamar, Idaho	14 6	15 6
Elkhorn, Mont	8 6	9 6
Emma, Utah	4½	7½
Flagstaff, Utah	6	9
Golden Feather, Cal.	7 0	8 0
Golden Gate, Cal	7 6	8 6
Golden Leaf, Mont. & N. M.	8	9
Harquahala, Ariz	15 0	17 6
Holcomb Valley, Cal.	10½	1 1½
Jackson Gold Fields	9	1 0
Jay Hawk & Lone Pine, Mont	7 0	7 6
Maid of Erin, Colo	1 3	3 9
Mammoth Gold, Ariz.	6	0 9
Mesquital del Oro, Mex., P	2 0 0	3 0 0
Mesquital del Oro, Mex., D	10 0	1 0 0
New Guston, Colo	10 0	11 0
New Montana, Mont.	2 3	2 9
Palmarejo, Mex	3	9
Pinos Altos, Mex	1 0	1 6
Poorman Cons., Idaho	3 0	4 0
Rajah Gold, Can	3 9	6 3
Richmond Con., Nev.	12 6	17 6
Seven Stars, Ariz	15 0	1 0 0
Sierra Buttes, Cal	6 0	8 0
Springdale Gold, Colo.	3 0	3 6
United Mexican, Mex.	2 0	3 0

New York Mining Stocks.

(Latest quotations.) Oct. 13.

	Bid.	Asked.
Alice	$0.20	$0.40
Alta	0.10	...
Best & Belcher	0.60	....
Bodie	0.15	...
Breece	0.20	0.30
Brunswick	0.05	0.07
Bulwer	0.10	....
Caledonia, B. H.	....	0.10
Cal. & Hecla Copper	....	0.60
Castle Creek	0.02	—
Challar	0.20	....
Chrysolite	0.14	0.19
Colo. Cent. Consol.	..	1.00
Comstock Tunnel	0.06	0.08
Con. C. & Va	1.75	....
Crown Point	0.20	..
Deadwood	0.50	....
El Cristo	....	0.25
Enterprise	....	1.50
Father De Smet	0.12	0.17
Gould & Curry	0.25	....
Hale & Nor	0.40	...
Holyoke	0.02	0.04
Horn Silver	2.90	3.00
Iron Silver	....	0.25
Kingston & Pem	0.15	0.25
La Crosse	0.04	0.06
Leadville	0.12	....
Little Chief	0.13	....
Mexican	0.45	....
North Star	0.70	....
Ophir	0.60	—
Phœnix of Ariz.	.06	....
Phœnix Trust Co.	0.47	0.50
Plymouth Con	....	0.90
Potosi	0.25	....
Savage	0.30	....
Sierra Nevada	0.40	....
Sutro Tunnel	...	0.03
Union Cons.	0.25	....
Utah	0.10	....
Yellow Jacket	0.35	....

ASSESSMENTS.

Company.	No.	Dlnqt. in office.	Day of sale.	Amt per sh're
Amador, Cal.	1	Oct. 12	Nov. 7	.05
Anchor, Utah	19	Aug. 23	Oct. 19	.20
Arnold, Ariz.	5	Oct. 23	Nov. 9	.50
Bay State, Cal.	16	Sept. 28	Oct. 25	.02
Belle Isle, Nev.	19	Nov. 2	Nov. 24	.10
Bodie T., Cal.	17	Oct. 7	Oct. 24	.10
Bahama, S. Dak	....	Oct. 28	Nov. 15	.001½
Br'nsw.Cn.,Cal	6	Oct. 6	Oct. 24	.02
Bunker Hill, S. Dak	5	Oct. 21	Nov. 11	.001
Caledonia, Cal.	17	Oct. 16	Nov. 15	.50
Cons. Wyoming, Nev.	3	Nov. 13	Dec. 2	.05
Cons. N. Y., Nev.	11	Nov. 1	Nov. 22	.05
Crescent, Utah	....	Oct. 18	Nov. 10	.03
Crown Point, Nev	62	Oct. 31	Nov. 21	.10
Dora Gold, Cal.	1	Sept. 25	Oct. 25	.05
Emmett, S. Dak	....	Oct. 19	Nov. 8	.002
Fairfi'ld, S. Dak	3	Sept. 30	Oct. 20	.002
Hidden Treasure, Cal.	1	Nov. 1	Dec. 1	.05
Hudson Bay Cons., Nev.	2	Nov. 11	Nov. 30	.10
J'ck Rabbit, Cal	4	Oct. 9	Oct. 30	.05
Martin White, Nev	29	Oct. 26	Dec. 14	.25
Orleans, Cal.	13	Oct. 9	Oct. 31	2.00
Oro Cache, S. Dak	4	Oct. 21	Nov. 9	.001½
Overman, Nev.	68	Oct. 5	Oct. 26	.05
Peruvian Con., Utah	....	Sept. 18	Oct. 15	.00½
Pocahontas, S. Dak	8	Oct. 9	Oct. 28	.001
Potosi, Nev	39	Oct. 16	Nov. 7	.25
Richl'nd, S. D'k	....	Oct. 28	Nov. 15	.001½
Siskiyou Con. Q'cksilv., Cal.	7	Oct. 5	Oct. 27	.01
Teirakoff, Cal.	10	Sept. 28	Oct. 19	.01
Union Cons., Nev	48	Nov. 8	Nov. 29	.20
Utah Con., Nev	19	Oct. 4	Oct. 25	.05
Valenzuela	2	Oct. 23	Nov. 10	.01
Victory, S. Dak	3	Nov. 4	Nov. 21	.001

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American Diamond Rock Boring Co.
Bullock, M. C., Mfg. Co.
Burleigh Rock Drill Co.
Clayton Air Compressor Works.
Hasenzahl, W.
Ingersoll-Sergeant Rock Drill Co.
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Norwalk Iron Works Co.
Penn Diamond Drill & Mfg. Co.
Rand Drill Co. (See Diamond Drills.)

Aluminum
Cowles Electric, S. & A., Co.

Amalgamators
Bucyrus Steam Shovel & Dredge Co.
Denver Separator & Amalgamator.
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Architects and Builders
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Belting
Groetzinger & Sons.
Hendrie & Bolthoff Mfg. Co.
Jeffery Mfg. Co.
Link Belt Machinery Co.
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Blasting Caps and Fuse
Lau, J. H., & Co.
Macbeth, James, & Co.
Metallic Cap Mfg. Co.

Blowers
Foos Mfg. Co.
Sturtevant, B. F. Co.

Boiler Compound
American Fluoride Co.

Boilers
Babcock & Wilcox Co.
Heine Safety Boiler Co.
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Scaife, Wm. B. & Sons.
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(See Machinery.)

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Scaife, Wm. B. & Sons.
(See Machinery.

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Coal Cutters
Ingersoll-Sergeant Drill Co.
Jeffrey Mfg. Co. (See Machinery.)

Coke
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Concentrators, Crushers, Pulverizers, Separators, Etc.
Allis, Ed. P. & Co.
American Mining & Milling Machinery Co.
American Ore Machinery Co.
Beckett Foundry & Machine Co.
Blake, Theo. A.
Bradley Fertilizer Co.
Colorado Iron Works.
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(See Machinery.)

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(See Air Compressors and Rock Drills.)

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(See Wire Rope Tramway and Machinery.)

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Adams, W. H.
Argall, Phillip.
Askew & Russell.
Baker & Co.
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Blauvelt, Harrington.
Boggs, W. R., Jr.
Boss, Clarence M.
Boss, M. P.
Brodie, Walter M.
Burfeind, J. H.
Burlingame, E. E.
Butters, Charles.
Campbell-J'nston R.C.
Carpenter, Franklin R.
Carv, J. Stockly
Cazin, Franz.
Chandler, W. H.
Channing, J. Parke.
Chanute, O.
Chatard, Thomas M.
Clark, C. H.
Clark, Ellis.
Clement, Victor M.
Collins, J. H. & Sons.
Cramer, Stuart W.
Darling, L. B.
De la Bouglise, Geo.
Dewey, Frederic P.
Dickerman, Alton L.
Dickinson, H. P.
Donald, J. T.
Emmens, Stephen H.
Everette, Dr. W. E.
Farish, John B.
Farish, Wm. A.
Fearn, Percy L.
Fisk, W. W.
Freeland, Francis T.
Froehling, Dr. Henry.
Fulton, Henry.
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Genth, F. A., Jr.
Godfrey, W. S.
Goudie, James H.
Hahn, O. H.
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Hampton, W. Huntley
Hardman, John E.
Hastings, John B.
Hedburg E.
Herndon, J. H.
Hofman, Ottokar.
Hollbaugh, J. R.
Hooker & Lawrence.
Hunt & Robertson.
Ihne, F. W.
Jennings, E. P.
Jones & Jones.
Kendall, E. Dwight.
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